TRANSPORTATION PLAN

WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA
AME PROJECT NO. 21001.73

July 30, 1996

Prepared By

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ACTON •
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Consulting Scientists, Engineers, and Geologists

August 1, 1996

Mr. Hamid Saebfar, Chief
Site Mitigation Branch, Region 3
Attn: Whittaker Project Manager
Department of Toxic Substances Control
1011 North Grandview Avenue
Glendale, California 91201

21001.73/7

Subject: Consent Order, Docket HSA - 94/95-012
Transportation Plan--Whittaker Corporation, Bermite Facility
22116 West Soledad Canyon Road, Santa Clarita, California 91350

Dear Mr. Saebfar:

Acton • Mickelson • Environmental, Inc. (AME), on behalf of our client, Whittaker Corporation, submits the enclosed Transportation Plan. Also enclosed is a computer disk containing the text of the Transportation Plan in WordPerfect version 5.1. Comments on the Transportation Plan, as set forth in the California Environmental Protection Agency, Department of Toxic Substances Control (Cal-EPA) letter dated May 2, 1996, have been incorporated in the document.

Sincerely,

ACTON • MICKELSON • ENVIRONMENTAL, INC.

Joseph E. Mello, R.E.A.
California Registered Environmental
Environmental Assessor #04047

Barbara J. Mickelson, P.E.
California Registered Professional
Engineer #43417

JEM:BJM:mjd
Enclosures

cc/enc: Ms. Lynne M. O. Brickner, Esq., Whittaker Corporation
Mr. Glen AbdunNur, Whittaker Corporation, Bermite Facility
Mr. Jose Ochoa, Los Angeles County Fire Department
Ms. Mary Blevins, Hazardous Waste Management Division,
U.S. Environmental Protection Agency, Region IX

L96-217.mj

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

TRANSPORTATION PLAN

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1.0 INTRODUCTION

This Transportation Plan (Plan) was prepared in accordance with the Code of Federal Regulations (CFR), Title 49, Transportation, Parts 100 to 199, the California Health and Safety Code, Section 25169.3, and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Interim Final document "Transportation Plan, Preparation Guidance for Site Remediation" dated May 1994. The Plan implements a transportation program for the disposal of hazardous waste derived from investigation and remediation activities at the Whittaker Corporation (Whittaker), Bermite facility (Bermite facility), located at 22116 West Soledad Canyon Road, Santa Clarita, California (Figures 1 and 2). The purpose of the Plan is to minimize potential health, safety, and environmental risks resulting from the movement of material and/or equipment during site cleanup transportation activities.

The Bermite facility is the subject of a Consent Order between DTSC and Whittaker executed on November 21, 1994. Whittaker is conducting a Remedial Investigation/Feasibility Study (RI/FS), baseline risk assessment, environmental review, and remedial action (RA) at the Bermite facility. DTSC is overseeing the study activities and the transportation program outlined in this plan.

Whittaker has owned the property since 1967 and operated an ordnance manufacturing facility from 1967 to 1987. The area was originally subdivided into three parcels in 1912 by Newhall Land & Farming Company and Los Angeles Home Company. Parcel 1 is the northern portion of the Bermite facility that is now occupied by the commuter rail center. Parcel 2 is the southern, roughly square area of the property. Parcel 3 is the western portion of the Bermite facility. Previous owners include the Los Angeles Powder Company in 1934, Halifax Explosives Company from 1936 to 1942, E. P. Halliburton, Inc. in 1942, and Bermite Powder Company from October 1942 to October 1967. These companies produced munitions and explosives. Waste products from the operations of the various companies, including debris, metal, and solvents were encountered at various locations on the site. This Plan has been prepared to document the procedures to be utilized when transporting hazardous or non-hazardous waste generated during field investigation, Interim Remedial Measures (IRMs), and RA at the Bermite facility.

2.0 GENERAL

Hazardous waste generated during the conduct of the RI, IRMs, and/or the RA will be handled in accordance with the procedures promulgated in the Plan. The California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 10, Article 11 and 40 CFR 261 will be used to assess the hazardous nature of waste products. Generally, waste products are considered to be hazardous if they are ignitable, corrosive, toxic, or reactive. Non-hazardous waste generated during the RI, IRMs, and/or RA will be transported with a non-hazardous waste manifest to a Class III landfill. Trucks will transport non-hazardous waste under a non-hazardous waste manifest and will be clearly marked with a "non-hazardous" placard.

Whittaker may implement IRMs in areas to minimize and stabilize releases or threats of releases of metals, solvents, and/or industrial wastes. These IRMs may include excavation of the material for off-site disposal and/or recycling. IRMs may also be implemented in order to remove certain wastes to facilitate further investigation. Whittaker will implement a RA after the RI and IRMs have been completed. Tasks to be completed during the RA may include the excavation and off-site disposal and/or treatment of hazardous waste. Implementation of the RA is currently scheduled for November 1998.

2.1 Description of Hazardous Waste

Soil containing five types of hazardous waste may be excavated for off-site disposal and/or treatment from the Bermite facility: (1) organic compounds, (2) heavy metals, (3) polynuclear hydrocarbons (PNAs) and dioxins/furans, (4) low-level radioactive material, and (5) ignitable waste. Hazardous waste and hazardous waste residue have been identified in the soil at a number of areas at the Bermite facility (identified by area number and designation on Figure 2). Excavation and off-site disposal of soil containing hazardous concentrations of organic compounds, heavy metals, ignitable wastes, or depleted uranium will be completed during the IRMs and/or RA. Hazardous wastes identified during the RI (except depleted uranium), the physical and chemical properties of the hazardous wastes, and the anticipated quantities of each hazardous waste material are included in Table 1. It is anticipated that a total of between 1,000 and 10,000 cubic yards of hazardous waste will be produced during the IRMs and RA.

Organic compounds (mostly solvents used for metal cleaning and propellant storage), such as perchloroethene (PERC) and trichloroethene (TCE), have been reported at elevated concentrations in soil during the initial phase of the RI. PERC is known to affect the central nervous system. TCE is toxic and is listed as a cancer-causing chemical under Proposition 65. Solvents have been detected at elevated concentrations in soil at two areas (Area 14--Burn Area and Area 55--Near Former Building 327) during the RI (Figure 2) and may be excavated during the IRMs and RA.

Metal concentrations in the soil, particularly arsenic, copper, lead, nickel, and chromium, have been detected at elevated levels in 17 areas. Arsenic, nickel, and chromium (in its hexavalent form) are listed as cancer-causing agents under Proposition 65. Arsenic, nickel, chromium, lead, and copper can be toxic at hazardous concentrations. Lead can cause damage to the central nervous system and red blood cells, and is listed as a reproductive toxic substance for men and women under Proposition 65.

PNAs and dioxins/furans, products of incomplete combustion, have been detected in two areas (Area 14--Burn Valley and Area 16--Hula Bowl Canyons 1 through 9; Figure 2). PNAs and dioxins/furans tend not to move in the environment because they adhere to soil and do not dissolve easily in water. Some PNAs are suspected to cause cancer. Dioxins are highly toxic and are rapidly absorbed through the skin and gastrointestinal tract.

Depleted uranium, a low-level radioactive waste by-product of the process that produces enriched uranium, will be transported off site for disposal. Depleted uranium was used at the Bermite facility in armor-piercing penetrator heads for bullets. Depleted uranium was used for its high density and respective penetration ability, not for its radioactive nature. Based on the results of a radiation characterization survey conducted by a health physicist, no radiation hazard exists to workers or to the public from the depleted uranium. Depleted uranium from the Bermite facility is in metal form; it will not be an airborne inhalation or skin contamination hazard. Hazards associated with depleted uranium are external and internal radiation exposure, chemical toxicity, and pyrophoricity.

Ignitable wastes, including stabilized red phosphorus, rocket propellant, and chemical oxidizers, have been detected in two areas (Area 13--New Lead Azide Area Near Former Building 207 and Area 34--Near Former Building 313; Figure 2). Ignitable wastes are capable of being set afire or bursting into flame spontaneously, or by interaction with another substance or material.

2.2 Description of Non-Hazardous Waste

Waste containing metallic debris, trash, and non-hazardous concentrations of chemicals of concern may be excavated. Non-hazardous waste may be excavated from up to 50 of the areas of investigation shown on Figure 2, including the areas where hazardous waste is located. Soil containing metal debris will first be sorted to remove recyclable pieces of metal. Following receipt of analytical results of wipe samples, the sorted metallic debris will be transported to a local recycling facility. It is anticipated that in excess of 10,000 cubic yards of non-hazardous waste may be produced during the IRMs and RA.

2.3 Waste Handling

Excavation and stockpiling of hazardous waste will be done prior to transportation of the waste. Dust-restraining measures will be implemented during excavation, stockpiling, and loading activities to minimize potential exposure to airborne dust/hazardous waste. These measures will include misting the ground surface, soil stockpiles, and soil in the trailers with water prior to transporting off site. Applied water provides dust control in dry and dust-prone areas and minimizes the generation of dust particles and airborne contaminants. An air monitoring program, including use of an organic vapor analyzer to monitor airborne organic compounds, a Miniram® for monitoring airborne dust, and a portable survey instrument for radiation, will be utilized in general accordance with the Site Health and Safety Plan during the excavation and transportation of hazardous waste.

Soil stockpiles containing hazardous concentrations of waste will be underlain by and covered with plastic sheeting to minimize the likelihood of transportation by wind and/or stormwater runoff. There are currently no regulatory guidelines or regulations concerning the storage of non-hazardous waste. Soil stockpiles of non-hazardous waste will be maintained in a manner which will limit the likelihood of transportation by wind and/or stormwater runoff.

2.4 Destination of Waste Material

Waste containing hazardous concentrations of organic compounds, heavy metals, PNAs and dioxins/furans, and ignitable waste will be transported in general accordance with 49 CFR, Parts 100 to 199; 40 CFR, Parts 261 to 265; and CCR, Title 22, Division 4.5 to the Kettleman Hills facility of Chemical Waste Management, Inc. (Chem Waste), a Class I treatment, storage, and disposal facility. Chem Waste is located at 35251 Old Skyline Road, Kettleman City, California. Chem Waste is permitted for the treatment, storage, and disposal of hazardous waste in general accordance with the Resource Conservation and Recovery Act (RCRA) (Part B permit). Waste materials transported from the Bermite facility will be landfilled by Chem Waste. The Chem Waste facility is operated in general accordance with permits issued by the U.S. Environmental Protection Agency (EPA), DTSC, the California Regional Water Quality Control Board, Central Valley Region, Kings County Air Pollution Control District, and the Kings County Planning Commission. Ms. Kristine Poulos (phone numbers 209-386-9711 or 800-222-2964) is the contact person for Chem Waste. A copy of the Hazardous Waste Facility Permit for the Kettleman Hills facility issued by DTSC is included in Appendix A.

Waste containing hazardous concentrations of radioactive materials will be transported in general accordance with 49 CFR, Parts 100 to 199; 40 CFR, Parts 261 to 265; CCR, Title 22, Division 4.5; and 10 CFR 71 to the Chem-Nuclear Systems, Inc. (Chem-Nuclear), low-level radioactive waste disposal facility in Barnwell, South Carolina, for landfilling. Chem-Nuclear is operated in general accordance with licenses issued by the U.S. Nuclear Regulatory Commission (NRC) and the South Carolina Department of Health and Environmental Control

(DHEC). Mr. Scotty Jones, the assistant licensing manager, is the contact person for Chem-Nuclear (803-259-1781). Copies of the licenses issued by the NRC and DHEC in addition to the disposal criteria for Chem-Nuclear are contained in Appendix B.

Non-hazardous waste materials will be transported to the Waste Management, Inc., Bradley facility (WMI-Bradley), a Class III landfill, located at 9081 Tujunga Avenue in Sun Valley, California. Mr. Harry Sabounjian (818-252-3132) is the contact person for WMI-Bradley.

2.5 Contact Persons

Questions and/or comments regarding the transportation of hazardous waste from the Bermite facility should be addressed to the following persons:

Contact Person	Affiliation	Phone Number
Mr. Mike Reina	Martin Environmental Services	805-287-3737 (Work) 805-288-3119 (Pager) 805-296-0154 (Home)
Ms. Barbara Mickelson	Acton • Mickelson • Environmental, Inc.	916-939-7550 (Work) 916-676-3831 (Home)
Mr. Glen AbdunNur	Whittaker Corporation	805-259-2242 (Work) 818-360-4343 (Home)
Mr. Thomas Gray	Thomas Gray and Associates	714-997-8090 (work)

2.6 Transportation Mode

Waste containing hazardous concentrations of organic compounds, heavy metals, PNAs and dioxins/furans, and ignitable and non-hazardous wastes will be transported from the site in trucks with dual, open-top trailers operated by Martin Environmental Services (Martin), an EPA-permitted hazardous waste hauler. Each trailer has a capacity of 10 cubic yards of soil; therefore, each load which leaves the site will consist of no more than 20 cubic yards of hazardous waste. Trailers will be covered with a canvas tarpaulin or other suitable material to minimize the potential for release of hazardous waste during transport. Trailers with closed tops may also be used in place of open-top trailers.

Martin is permitted by EPA for transporting hazardous waste in general accordance with Section 3010 of the RCRA; registered with the U.S. Department of Transportation (DOT) for the transportation of hazardous materials in general accordance with 49 CFR 107, Subpart G; licensed by the California Highway Patrol (CHP) to transport hazardous materials; and is registered as a hazardous waste transporter by DTSC in general accordance with the California Health and Safety Code, Chapter 6.5, Division 20, and the CCR, Title 22, Division 4.5. Certifications of the required registrations and licenses for Martin are contained in Appendix C. A subcontractor with similar qualifications may also be used for transporting by trucks hazardous wastes that are ignitable or contain organic compounds or heavy metals.

Waste containing hazardous concentrations of radioactive materials will be transported within closed containers in general accordance with 10 CFR 71 in closed trailers or on flatbed trucks operated by Thomas Gray and Associates (Thomas Gray), an EPA-permitted radioactive waste hauler. Thomas Gray is permitted by EPA for transporting hazardous waste in general accordance with Section 3010 of the RCRA; licensed by the California Health and Welfare Agency to receive, transfer, and transport radioactive waste in general accordance with the CCR, Title 17, Division 1; registered with the DOT for the transportation of hazardous materials in general accordance with 49 CFR 107, Subpart G; licensed by the CHP to transport hazardous materials; permitted by the DHEC to transport radioactive waste; and is registered as a hazardous waste transporter by DTSC in general accordance with the California Health and Safety Code, Chapter 6.5, Division 20, and the CCR, Title 22, Division 4.5. Certifications of the required registrations, permits, and licenses for Thomas Gray are contained in Appendix D.

3.0 TRANSPORTATION ROUTE

Routes for transportation of hazardous waste to Chem Waste and Chem-Nuclear and non-hazardous waste to WMI-Bradley have been selected to minimize the amount of time spent en route and within populated areas. Primary and alternate routes for the transportation of hazardous waste within Santa Clarita and the primary routes for the transportation of hazardous waste within California are shown on Figures 3 and 4, respectively. Primary and alternate routes for the transportation of non-hazardous waste to WMI-Bradley are shown on Figure 5.

3.1 Route to Chemical Waste Management, Inc.

Hazardous waste being transported to Chem Waste will exit the Bermite facility and will be transported west on Soledad Canyon Road for approximately 2.0 miles to Magic Mountain Parkway. Trucks will then proceed west approximately 2.0 miles on Magic Mountain Parkway to northbound U.S. Interstate 5 (I-5). Trucks will continue north on I-5 for approximately 126 miles to State Highway 41 (SH-41) and will proceed west on SH-41 for approximately 2.5 miles to Old Skyline Road. Chem Waste is located north of SH-41 at 35251 Old Skyline Road.

As an alternate route, the waste being transported to Chem Waste will exit the Bermite facility and will be transported east on Soledad Canyon Road for approximately 4.0 miles to Sierra Highway. Trucks will proceed south on Sierra Highway approximately 0.8 mile to State Highway 14 (SH-14; the Antelope Valley Freeway) and will travel southwest on SH-14 approximately 6.5 miles to northbound I-5. Trucks will continue north on I-5 to Chem Waste as described for the primary route. Waste will not be transported from the Bermite facility if I-5 is closed. The CHP is the primary emergency service organization with jurisdiction on I-5 and SH-14. Los Angeles County Sheriff's Department is the primary emergency service organization with jurisdiction on Soledad Canyon Road, Magic Mountain Parkway, and Sierra Highway. Emergency service organizations will be notified on a daily basis when hazardous waste from the Bermite facility is expected within their jurisdiction. The primary and alternate routes for transportation of hazardous waste to Chem Waste are shown on Figures 3 and 4.

A weigh station is located approximately 50 miles north of Santa Clarita on I-5 near the town of Wheeler Ridge, and a rest area is located approximately 40 miles north of Santa Clarita near the town of Grapevine. Other than Santa Clarita, the trucks will not pass through population centers en route to Chem Waste.

3.2 Route to Chem-Nuclear Systems, Inc.

The waste being transported to Chem-Nuclear will exit the Bermite facility and will be transported east on Soledad Canyon Road for approximately 4.0 miles to SH-14 and will travel approximately 23 miles northeast to eastbound Pear Blossom Highway. The Pear Blossom Highway will become State Highway 138 (SH-138) after approximately 5.5 miles. Trucks will remain on SH-138 for approximately 17.5 miles to the junction of State Highway 18 (SH-18). Trucks will travel east on SH-18 for approximately 23.5 miles to northbound Interstate 15 (I-15). Trucks will then proceed north approximately 35 miles on I-15 to the junction with Interstate 40 (I-40) in Barstow where the trucks will proceed east on I-40. Trucks will remain on I-40 for approximately 1,150 miles, traveling through Flagstaff, Arizona; Albuquerque, New Mexico; and Amarillo, Texas; to Oklahoma City, Oklahoma. In Oklahoma City, the trucks will proceed south on Interstate 35 (I-35) for approximately 190 miles to Dallas, Texas, where they will turn onto eastbound Interstate 20 (I-20). Trucks will proceed east on I-20 through Shreveport, Louisiana; Jackson, Mississippi; Birmingham, Alabama; and Atlanta, Georgia; to Augusta, Georgia (approximately 850 miles), where the trucks will proceed south on U.S. Route 278 for approximately 45 miles to Barnwell, South Carolina, and Chem-Nuclear. Because of the distance of the primary route (over 2,000 miles) and the many areas where there are potential detours, an alternative route has not been plotted. The routes for the transportation of low-level radioactive waste within Santa Clarita and the state of California are shown on Figures 3 and 4, respectively.

Along the route to Chem-Nuclear, the trucks will pass through approximately ten population centers (listed above). Most of the routine stops (e.g., refueling, rest stops, repairs) will occur within or on the outskirts of the population centers. The respective state highway patrols are the primary emergency service organizations with jurisdiction on state and interstate highways. Los Angeles County Sheriff's Department is the primary emergency service organization with jurisdiction on Soledad Canyon Road. Emergency service organizations will be notified on a daily basis when hazardous waste from the Bermite facility is expected within their jurisdiction.

3.3 Route to WMI-Bradley

Non-hazardous waste being transported to WMI-Bradley will exit the Bermite facility and will be transported west on Soledad Canyon Road for approximately 2.0 miles to Magic Mountain Parkway. Trucks will then proceed west approximately 2.1 miles on Magic Mountain Parkway to southbound I-5. Trucks will continue south on I-5 for approximately 18 miles to Lankershim Boulevard in Sun Valley and will proceed south on Lankershim Boulevard for approximately 0.25 mile to Tuxford Street. Trucks will proceed approximately 0.85 mile northeast on Tuxford Street to northwestbound Bradley Avenue, which becomes Tujunga Avenue. WMI-Bradley is located at 9081 Tujunga Avenue, approximately 0.5 mile from the junction of Tuxford Street and Bradley Avenue.

As an alternate route, the waste being transported to WMI-Bradley will exit the Bermite facility and will be transported east on Soledad Canyon Road for approximately 4.0 miles to Sierra Highway. Trucks will proceed south on Sierra Highway approximately 0.8 mile to SH-14 and will travel southwest on SH-14 approximately 6.5 miles to southbound I-5. Trucks will continue south on I-5 to WMI-Bradley as described for the primary route. As previously discussed, waste will not be transported from the Bermite facility if I-5 is closed. There are no weigh stations or rest areas between the Bermite facility and WMI-Bradley. The primary and alternate routes for transporting the waste to WMI-Bradley are shown on Figure 5.

3.4 Schedule

Prior to beginning transportation activities each week, Martin personnel will contact the CHP (805-257-6030) and the City of Santa Clarita, Department of Public Works (805-294-2500) to check if any potential road or traffic hazards exist. This will include checking road maintenance activities and any route restrictions by the CHP.

To minimize the impact on local traffic, trucks will leave the Bermite facility with hazardous waste between 8:30 a.m. and 3:30 p.m. It is estimated that an average of one and up to ten loads of hazardous waste will leave the Bermite facility on any day. Each load is considered a single truck with two trailers. A load will be comprised of 20 cubic yards of hazardous waste. Each round trip to Chem Waste will take approximately 6 to 8 hours. It is anticipated that each truck will make one trip per day. Each trip to Chem-Nuclear will take approximately 3 to 4

days. Each round trip to WMI-Bradley should take approximately 2 hours. It is anticipated that each truck may make up to four trips each day to WMI-Bradley. Up to 50 loads of non-hazardous waste may leave the Bermite facility in a day. Trucks transporting waste from the Bermite facility may operate between August 1996 and December 1998. Based on data generated during the RI, it is estimated that between 1,000 and 10,000 cubic yards of hazardous waste may be transported from the Bermite facility and disposed at Chem Waste or Chem-Nuclear.

3.5 Emergency Service Organizations

Emergency service organizations with jurisdiction along the transportation routes are listed in Table 2. Hazardous waste being transported from the Bermite facility is not anticipated to contain concentrations of hazardous materials that are immediately threatening to health or the environment. Emergency service organizations other than the CHP and Los Angeles County Sheriff's Department, therefore, will not be notified prior to transporting hazardous waste.

4.0 TRAFFIC CONTROL

Roads within the Santa Clarita commuter rail center (Figure 2), the exit point for trucks from the Bermite facility, have been designed to handle bus and other large vehicle traffic. A traffic signal is present at the exit from the Santa Clarita commuter rail center to West Soledad Canyon Road. Trucks transporting waste from the Bermite facility will enter West Soledad Canyon Road at the signal. Flagmen, lane closures, or other traffic control measures should, therefore, not be necessary.

4.1 Local Traffic Patterns

Hazardous waste will be transported from the Bermite facility in a manner that will minimize the impact to local businesses and residents. As previously discussed, trucks will leave the Bermite facility with hazardous waste between 8:30 a.m. and 3:30 p.m. This will minimize the likelihood trucks are within Santa Clarita during rush-hour traffic. Additionally, the primary routes have been planned to provide the most direct route to a highway or freeway. This reduces the amount of time trucks spend in commercial and residential areas.

Trucks traversing the primary route to Chem Waste will pass approximately four sensitive receptors (i.e., schools, hospitals, retirement homes, and child care centers; Table 3) en route to I-5. Trucks transporting hazardous waste to Chem-Nuclear or to Chem Waste via the alternate route will pass approximately seven sensitive receptors en route to SH-14.

4.2 On-Site Traffic and Loading Procedures

Soil containing hazardous concentrations of waste will be stockpiled in staging areas within the areas where hazardous waste will be produced (identified by area number and designation on Figure 2). Hazardous waste is not expected to be generated at any of the other areas investigated during the RI. Hazardous waste will be stored in each of the staging areas in general accordance with current regulatory guidelines and regulations. Trucks will be loaded with hazardous waste utilizing a backhoe at each of the staging areas. Dust-restraining measures, as described in Section 2.2, will be implemented to minimize potential exposure to airborne dust/hazardous waste. After loading is complete, trailers will be covered with a canvas tarpaulin or other suitable material to minimize the potential for release of hazardous waste during transport. Trailers with closed tops may also be used in place of open-top trailers.

Tires on each truck and trailer will be brushed down with a broom within the respective staging area prior to transporting the waste. The bodies of the trucks and trailers will be inspected by field personnel prior to leaving the staging area. Loose soil and/or waste materials on the bodies of the trucks and trailers will also be removed with a broom. Trucks will exit the staging areas and the facility via the routes depicted on Figure 6. Because the Bermite facility is currently inoperative, traffic on the property is limited to vehicles related to the environmental investigation; special on-site routing procedures, therefore, will not be required. After the remaining hazardous waste is removed from each staging area, a soil sample(s) will be collected and analyzed for the hazardous waste constituent(s).

4.3 Load Inspection

Prior to exiting the Bermite facility, each truck will be inspected by the Site Health and Safety Officer (SHSO) for the following:

- Correct placard has been displayed on the truck and trailers in general accordance with 49 CFR 172.506.
- Hazardous waste manifest has been completed in general accordance with 49 CFR 172. The SHSO should check the type and quantity of the hazardous waste and the destination of the truck.
- A cover for the hazardous waste has been secured over each trailer and properly fastened.
- Hazardous waste residues have been removed from the outside surfaces of the truck and trailers during the decontamination process.

Results of each inspection will be recorded in the SHSO's daily field notes and on the daily log of hazardous waste disposal (see Section 5.0).

5.0 RECORD KEEPING

During the inspection of each load of hazardous waste, the SHSO will complete a Daily Log of Hazardous Waste Disposal. A new log will be prepared each day hazardous waste is transported from the Bermite facility. The SHSO will enter the following information on the log:

- Truck identification (either the license plate number of the truck or the hazardous waste transported internal truck number) and driver.
- Time the load leaves the Bermite facility.
- Type of waste material.
- Estimated weight and volume. Both the weight and volume of each load will be estimated by the SHSO. An actual weight of the hazardous waste will be obtained at the disposal facility.

A hazardous waste manifest will be completed for each load and will remain in the cab of the truck during transport to the disposal facility. Laboratory analytical results for the waste material being transported will be attached to the manifest. Additionally, a copy of this Plan and a copy of the bill of lading (if required by the transportation company) will be carried by the truck driver with each load. The SHSO, who shall be trained in the preparation of hazardous waste manifests, will inspect the hazardous waste manifest prior to the departure of the truck. The SHSO will enter a check mark at the appropriate location on the Daily Log of Hazardous Waste Disposal indicating that the Plan, bill of lading, and hazardous waste manifest are being carried in the truck. If the required documentation is not in the truck, the SHSO will not permit the truck to exit the Bermite facility. Prior to departure of the truck from the Bermite facility, the SHSO will retain a copy of the hazardous waste manifest. Additionally, the SHSO will make copies of completed Daily Logs of Hazardous Waste Disposal at the end of each day. Copies of the completed logs will be retained along with the copies of the hazardous waste manifests and will be made available for review at the Bermite facility and in the project file of the environmental consultant. A copy of the form to be used as the Daily Log of Hazardous Waste Disposal is provided in Appendix E.

6.0 SITE HEALTH AND SAFETY PLAN

A Site Health and Safety Plan has been prepared for use during activities associated with the transportation of hazardous waste (Appendix F). Workers on the site, including the truck drivers hauling hazardous waste, will be properly trained in hazardous waste operations in general accordance with CCR, Title 8, Section 5192 and 29 CFR 1910.120. Trucks entering the facility for the first time each day will stop at the front gate, and the guard will notify the SHSO that a truck is entering the facility. Upon entry into the facility, the truck will stop at the field office and the SHSO will conduct a tailgate meeting with the driver on the responsibility of transporting the hazardous waste. If this is the driver's first trip to the Bermite facility and he has not reviewed the Site Health and Safety Plan, he will be given a copy of the Plan with the Site Health and Safety Plan (Appendix F). Each truck driver will be required to review and sign the Site Health and Safety Plan prior to proceeding into areas where hazardous waste has been staged. During subsequent visits to the Bermite facility, the SHSO will conduct a tailgate health and safety meeting with each truck driver upon entrance into the facility. Truck drivers will retain the Plan in the cab of their trucks during hazardous waste transportation activities associated with the Bermite facility.

Trucks should remain outside hazardous waste staging areas until ready for loading. To minimize the risk of exposure to hazardous waste, truck drivers should not exit the cab of the truck during the loading of waste. Soil will be kept several inches below the top of the trailer. After loading of the trailers is complete, the truck driver will drive the truck from the staging area to an immediately adjacent area and secure the top of the trailer with a tarpaulin or other appropriate cover. When transporting hazardous waste containing volatile organic compounds, the SHSO or personnel appointed by the SHSO will screen the breathing zone prior to emplacing the tarpaulin cover.

7.0 CONTINGENCY PLAN

A Contingency Plan for accidental off-site releases has been prepared (Appendix G). A Contingency Plan for on-site releases was included in the *Remedial Investigation Work Plan*, prepared by Acton • Mickelson • Environmental, Inc., dated August 29, 1995. Because hazardous waste being transported from the Bermite facility does not pose an immediate threat to human health or the environment, regulatory agencies will be provided with copies of the Contingency Plan. It should not be necessary to supply other emergency service organizations (i.e., local hospitals, ambulance services) with copies of the Contingency Plan.

TABLE 1

PHYSICAL AND CHEMICAL PROPERTIES OF HAZARDOUS WASTE CONSTITUENTS

Compound	Liquid Density (g/cc)[e]	Vapor Pressure (mm Hg)[f]	Henry's Law Constant (kPa-m3/mole)[g]	Koc[a] (ml/g)[h]	Water Solubility[b] (mg/l)[i]	TTLC[c] (mg/kg)[j]	STLC[d] (mg/l)	Quantity[k]
Metals								
Arsenic	Solid	NA[l]	NA	NA	(5)	500	5.0	50
Chromium III	Solid	NA	NA	NA	NA	2,500	5.0	500
Copper	Solid	NA	NA	NA	NA	2,500	25	200
Lead	Solid	NA	NA	NA	NA	1,000	5.0	500
Nickel	Solid	NA	NA	NA	NA	2,000	20	50
Volatile Organic Compounds, Halogenated								
Tetrachloroethene	1.63	14	2.3	660	150	NA	NA	900
1,1,1-Trichloroethane	1.31	13 kPa	0.28	152	730	NA	NA	100
Trichloroethene	1.46	60	1.18	126	1,100	2,040	204	100
1,2-Dichloroethane	1.25	70	0.12	14	8,700	NA	NA	100

TABLE 1 (continued)

PHYSICAL AND CHEMICAL PROPERTIES OF HAZARDOUS WASTE CONSTITUENTS

Compound	Liquid Density (g/cc)[e]	Vapor Pressure (mm Hg)[f]	Henry's Law Constant (kPa-m3/mole)[g]	Koc[a] (ml/g)[h]	Water Solubility[b] (mg/l)[i]	TTLC[c] (mg/kg)[j]	STLC[d] (mg/l)	Quantity[k]
Volatile Organic Compounds, Nonhalogenated								
Benzene	0.879	12.7 kPa	0.55	72	1,780	NA	NA	1
Styrene (monomer)	0.905					NA	NA	1
1,2,3-Trichloropropane	1.39	3	0.36	51	2,700	NA	NA	1

[a]Koc = Organic carbon/water partition coefficient.
[b]Water solubility of inorganic compounds is generally dependent on oxidation state, specific salt, and pH of solution.
[c]TTLC = Total threshold limit concentration.
[d]STLC = Soluble threshold limit concentration.
[e]g/cc = Grams per c
[f]mm Hg = Millimeters per mercury.
[g]kPa-m3/mole = Kilopascals. Alternative unit for vapor pressure.
[h]ml/g = Milliliters per gram.
[i]mg/l = Milligrams per liter.
[j]mg/kg = Milligrams per kilogram.
[k]Estimated quantity (cubic yards of soil containing hazardous waste that will be removed. Some hazardous waste may contain more than one hazardous constituent.
[l]NA = Not applicable.

TABLE 2

EMERGENCY SERVICE ORGANIZATION[a]

Organization	Jurisdiction	Phone Number[b]
California Highway Patrol	California Highways and Freeways	(805) 257-6030
Los Angeles County Sheriff's Department	Los Angeles County	(805) 255-1121
Santa Clarita Fire Department	Santa Clarita	(805) 259-2111
Henry Mayo Newhall Memorial Hospital	Santa Clarita	(805) 253-8000
California Department of Transportation (Caltrans)	California Highway and Freeways	(805) 427-7623
Public Utilities Commission	Transportation Firms	(805) 564-7727
California Department of Toxic Substances Control	California	(800) 698-6942
Santa Clarita Emergency Information Line	Santa Clarita	(805) 286-4105
Newhall Ambulance	Santa Clarita	(805) 251-3310

[a]Emergency service organizations listed also include law enforcement agencies.
[b]In an emergency dial 9-1-1.

TABLE 3

DISTANCES AND DIRECTIONS TO SCHOOLS, CHILD CARE CENTERS, RETIREMENT HOMES, AND HOSPITALS ALONG THE TRANSPORTATION ROUTES

Property Name and Address	Distance From Bermite Facility (miles)	Direction From Bermite Facility
GTA Ltd. Hospital 21704 Soledad Canyon Road Santa Clarita, CA	0.2	NE
Four Seasons Children's Center, Inc./ Creative Years Nursery School 21710 Golden Triangle Road Santa Clarita, CA	0.2	E-NE
His Little Lambs Preschool 21704 W. Golden Triangle Road Saugus, CA	0.2	E-NE
College of the Canyons & Child Development Center 24455, 25455, and 26455 North Rockwell Canyon Road Valencia, CA	1.8	W
Kinder-Care Learning Center 18525 West Soledad Canyon Road Canyon Country, CA	2.8	E
Sierra School, Inc. 18047 West Sierra Highway Canyon Country, CA	3.1	E-NE
Canyon Country Preschool 18324 Soledad Canyon Road Canyon Country, CA	2.7	E
Sand Castles Child Care 17950 North Sierra Highway Canyon Country, CA	3.3	E-NE

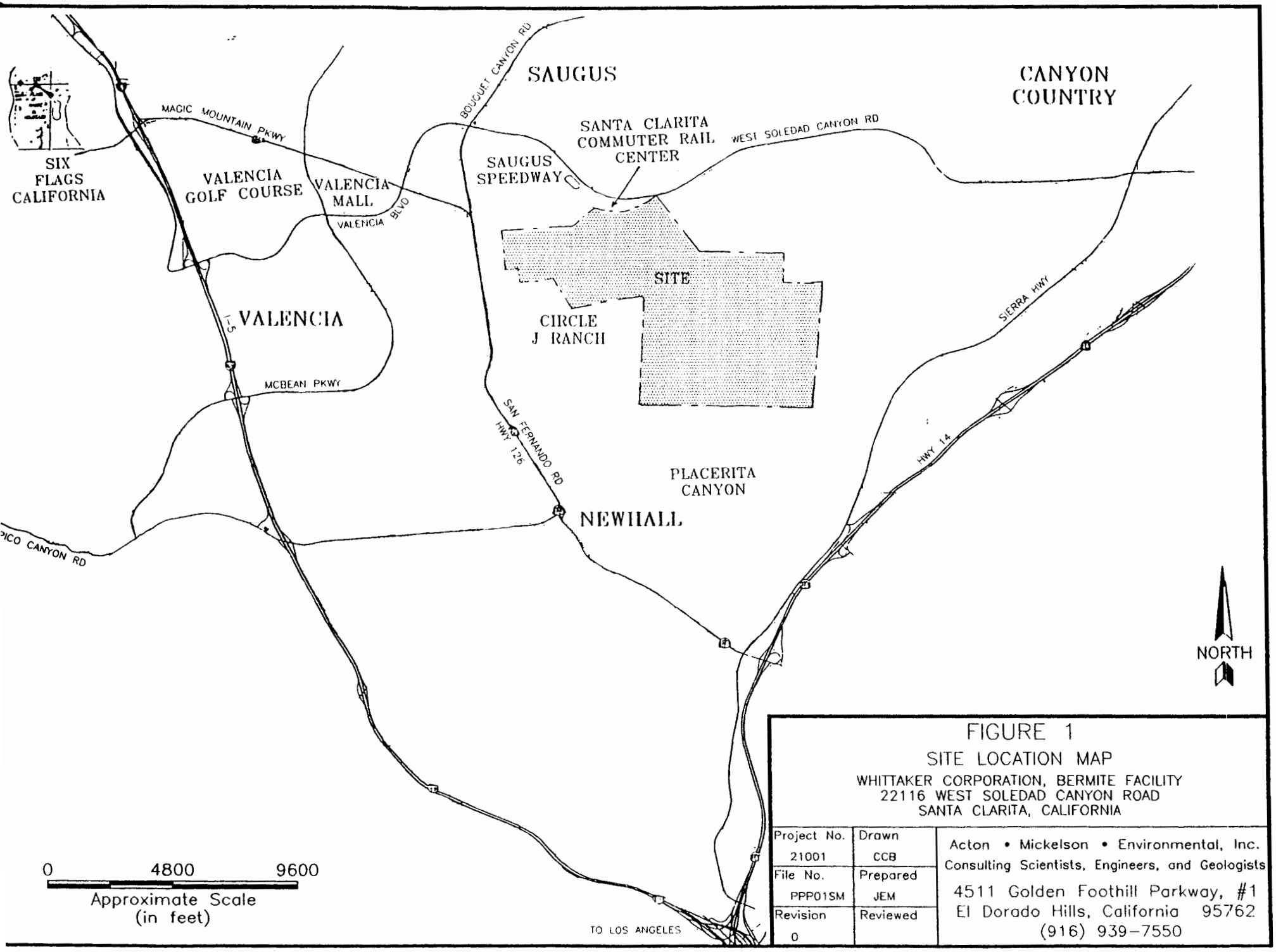


FIGURE 1

SITE LOCATION MAP

WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No.	Drawn
21001	CCB
File No.	Prepared
PPP01SM	JEM
Revision	Reviewed
0	

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
4511 Golden Foothill Parkway, #1
El Dorado Hills, California 95762
(916) 939-7550

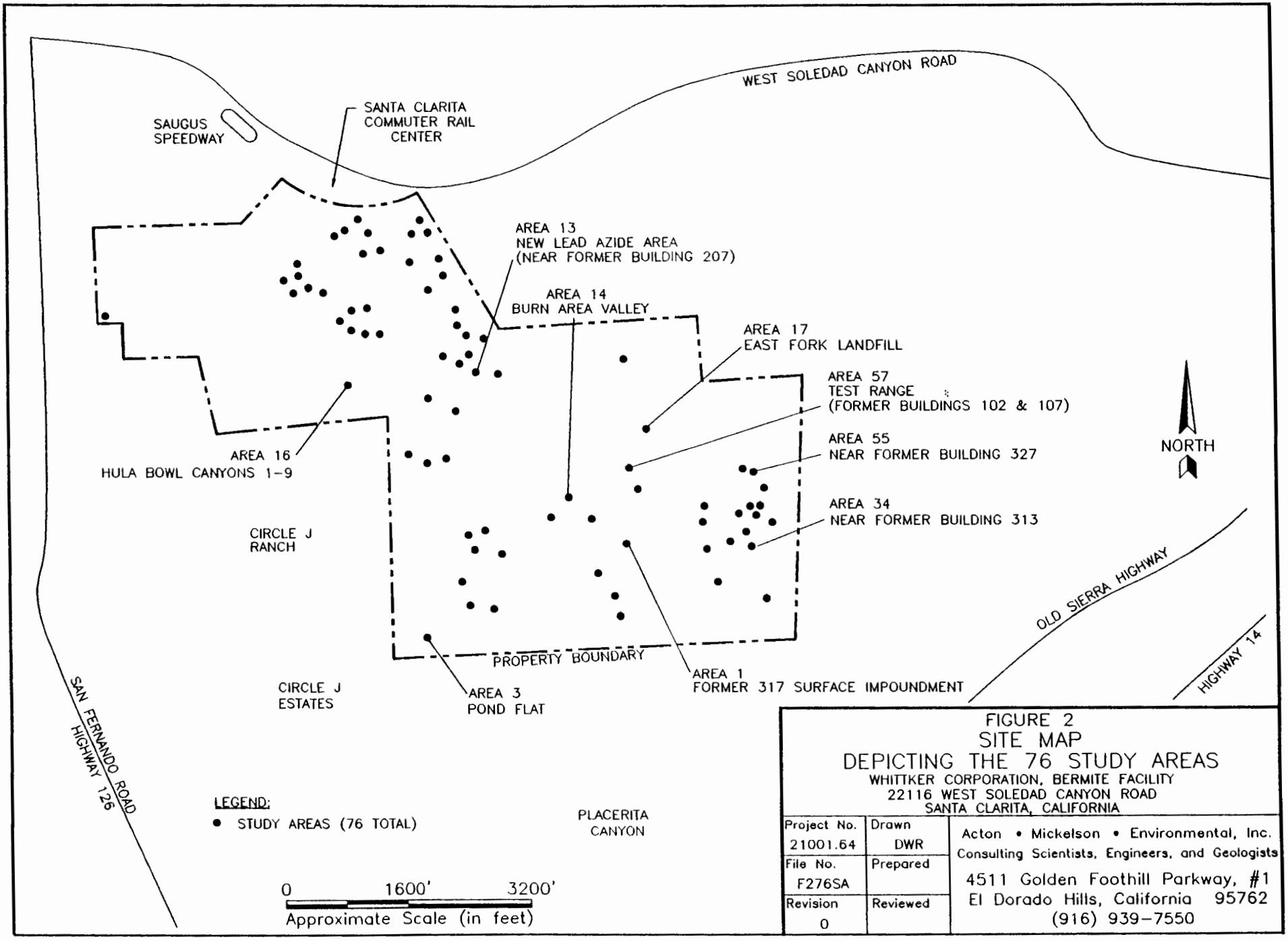


FIGURE 2
SITE MAP
DEPICTING THE 76 STUDY AREAS
WHITTKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No.	Drawn
21001.64	DWR
File No.	Prepared
F276SA	
Revision	Reviewed
0	

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
4511 Golden Foothill Parkway, #1
El Dorado Hills, California 95762
(916) 939-7550

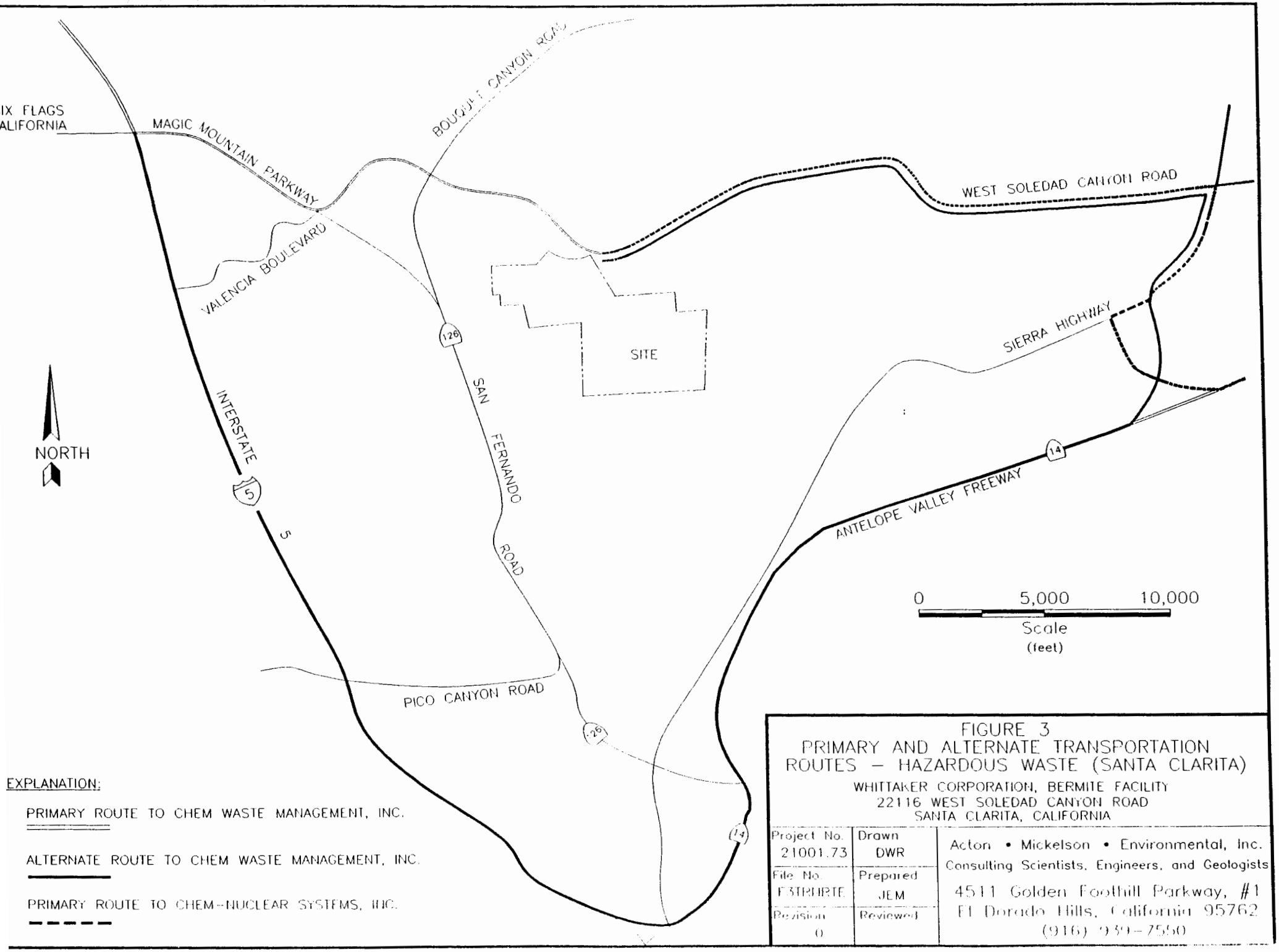
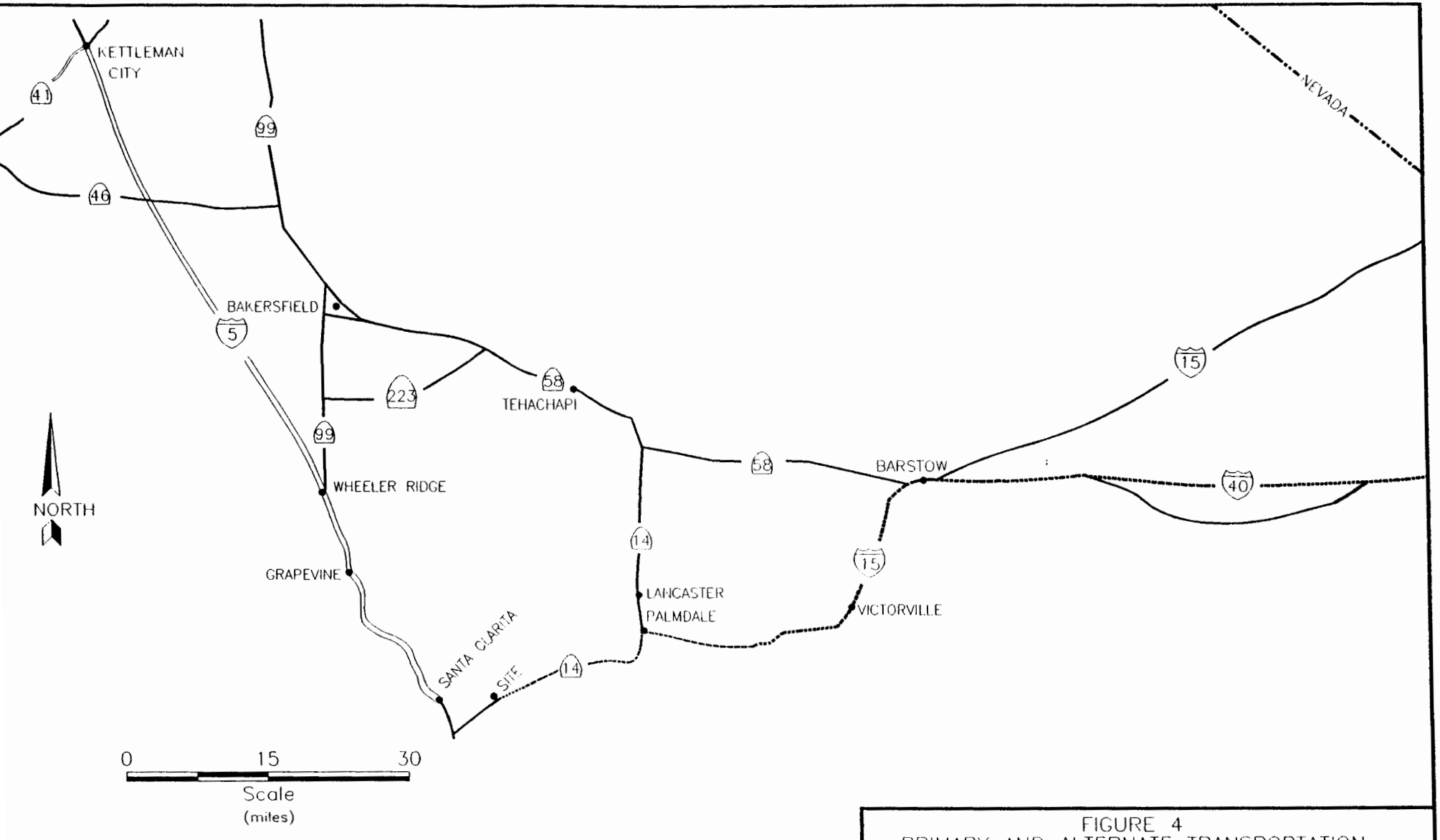


FIGURE 3
PRIMARY AND ALTERNATE TRANSPORTATION ROUTES – HAZARDOUS WASTE (SANTA CLARITA)

WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No. 21001.73	Drawn DWR
File No. F3TRHRTE	Prepared JEM
Revision 0	Reviewed

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
4511 Golden Foothill Parkway, #1
El Dorado Hills, California 95762
(916) 939-7550



EXPLANATION:

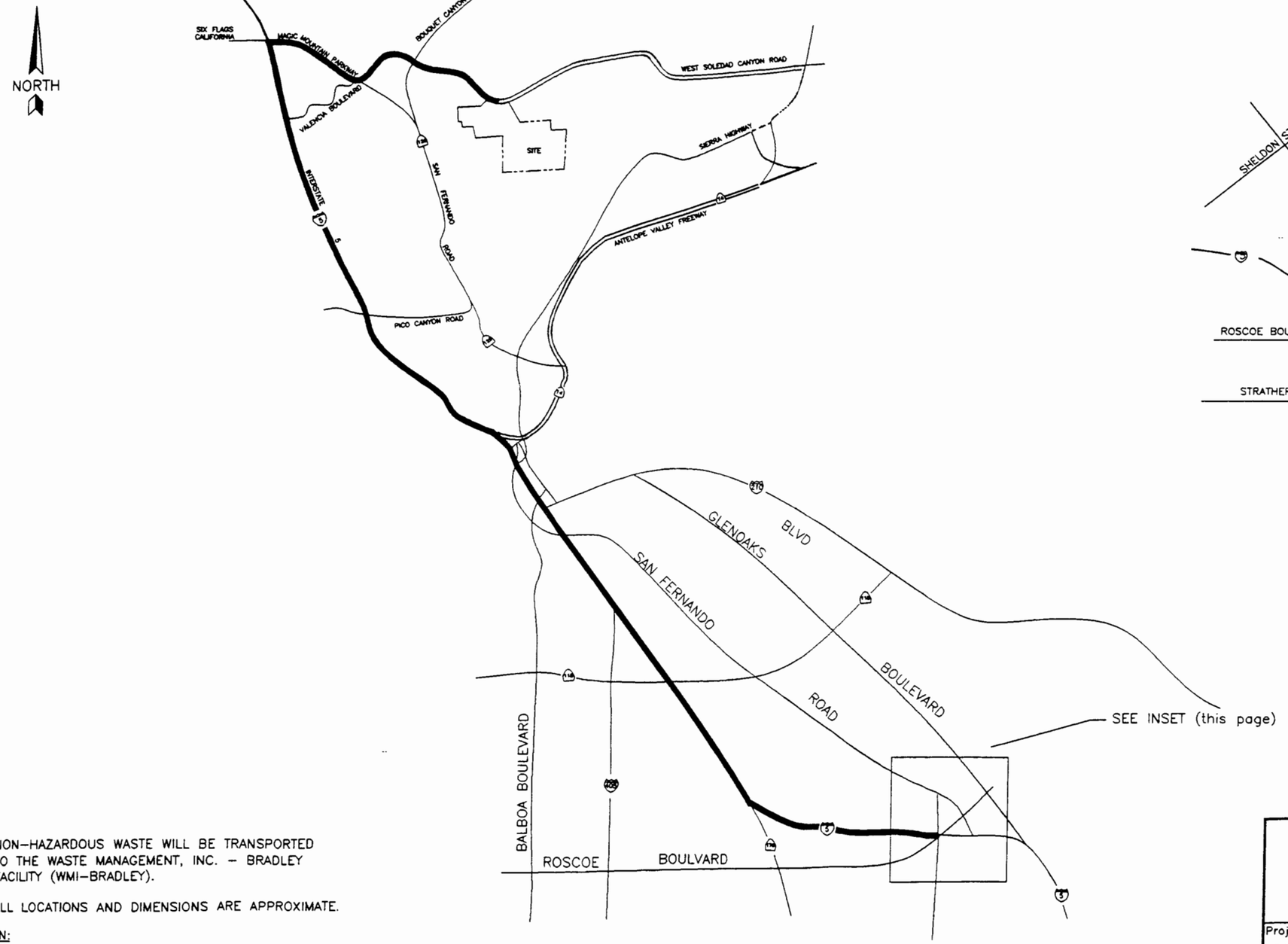
PRIMARY ROUTE TO CHEM WASTE MANAGEMENT, INC.

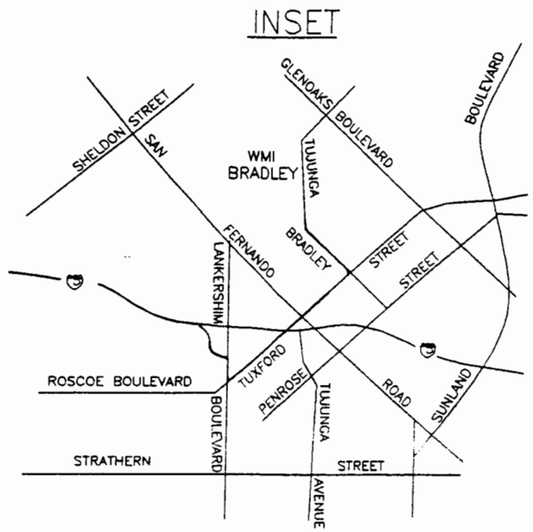
PRIMARY ROUTE TO CHEM-NUCLEAR SYSTEMS, INC.

FIGURE 4
PRIMARY AND ALTERNATE TRANSPORTATION ROUTES - HAZARDOUS WASTE (CALIFORNIA)
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No. 21001.73	Drawn DWR
File No. F4TRNRTE	Prepared JEM
Revision 0	Reviewed

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
4511 Golden Foothill Parkway, #1
El Dorado Hills, California 95762
(916) 939-7650





NOTES:

1) NON-HAZARDOUS WASTE WILL BE TRANSPORTED TO THE WASTE MANAGEMENT, INC. - BRADLEY FACILITY (WMI-BRADLEY).

2) ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

EXPLANATION:

- PRIMARY ROUTE TO WMI-BRADLEY
- ALTERNATE ROUTE TO WMI-BRADLEY

FIGURE 5
PRIMARY AND ALTERNATE TRANSPORTATION ROUTES - NON-HAZARDOUS WASTE
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No. 21001.73	Drawn DWR
File No. F5TRNRTE	Prepared JEM
Revision 0	Reviewed

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
4511 Golden Foothill Parkway, #1
El Dorado Hills, California 95762
(916) 939-7550

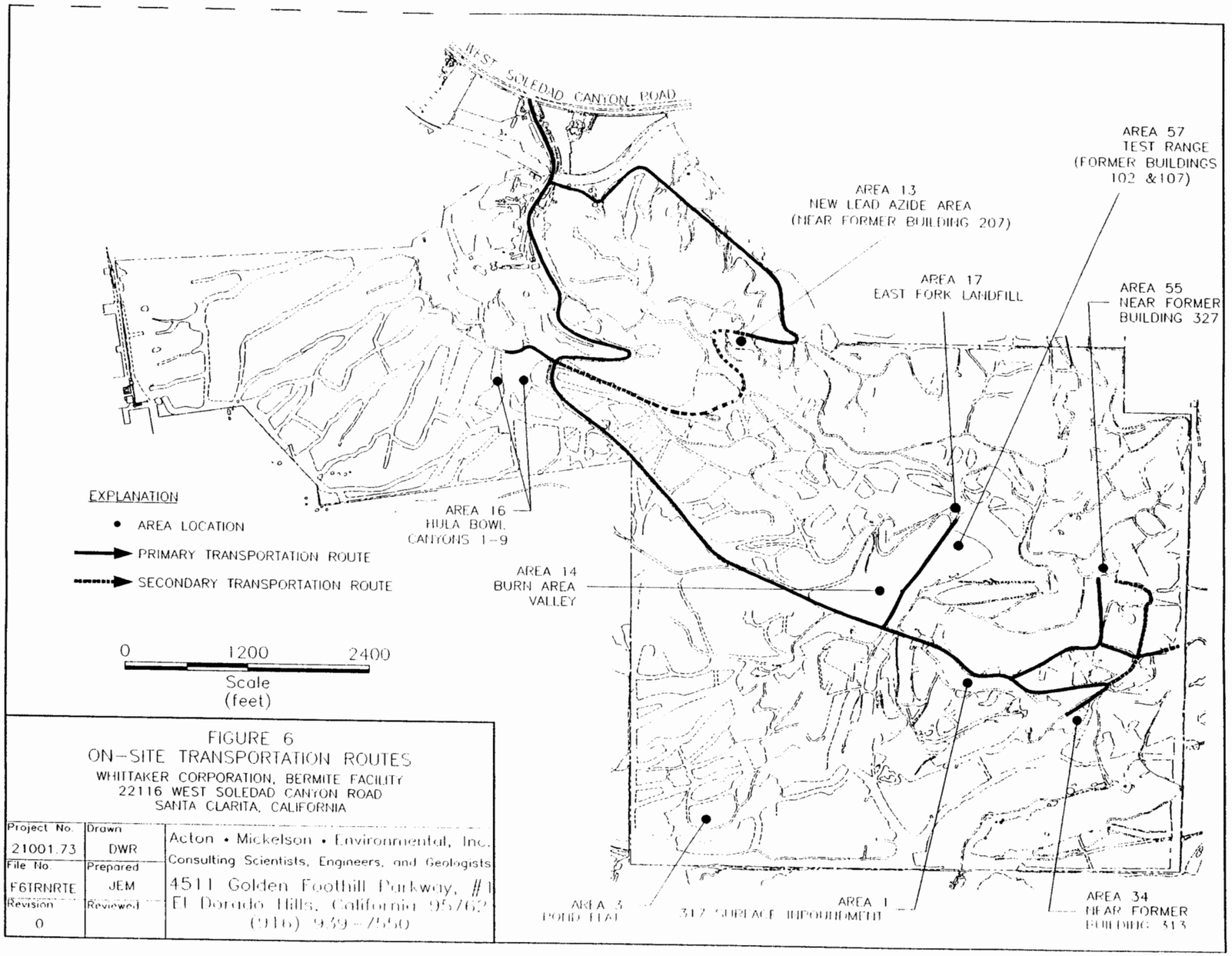


FIGURE 6
ON-SITE TRANSPORTATION ROUTES
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No.	Drawn	Acton • Mickelson • Environmental, Inc.
21001.73	DWR	Consulting Scientists, Engineers, and Geologists
File No.	Prepared	4511 Golden Foothill Parkway, #1
F6TRNRTE	JEM	El Dorado Hills, California 95762
Revision	Reviewed	(916) 939-7550
0		

APPENDIX A

HAZARDOUS WASTE FACILITY PERMIT
CHEMICAL WASTE MANAGEMENT, INC.

...IFORNIA — ENVIRONMENTAL PROTECTION AGENCY
...PARTMENT OF TOXIC SUBSTANCES CONTROL
...
...E. CROYDON WAY, SUITE 3
SACRAMENTO, CA 95827-2106

HAZARDOUS WASTE FACILITY PERMIT

Facility: Kettleman Hills Facility
35251 Old Skyline Road
Kettleman City, California 93239
EPA ID Number: CAT 000 646 117

Operator: Chemical Waste Management, Incorporated
39899 Balentine Drive
Newark, California 94560

Owner: Chemical Waste Management, Incorporated
3003 Butterfield Road
Oak Brook, Illinois 60521

Expiration Date: December 31, 1997

Pursuant to Section 25200 of the California Health and Safety Code, this Hazardous Waste Facility Permit is hereby issued to Chemical Waste Management, Incorporated, the owner and operator of the Kettleman Hills Facility.

The Kettleman Hills Facility (hereinafter called the facility) is a commercial, hazardous waste treatment, storage, and disposal facility. The facility is located in Kings County, California, north of State highway 41, approximately two and one-half miles from Interstate highway 5, at north latitude 35° 58' 00" and west longitude 120° 00' 45". The facility property owned by Chemical Waste Management, Incorporated includes all of Section 3, T23S, R18E, M.D.B. & M., all of Section 34, T22S, R18E, M.D.B. & M., and the eastern half of Section 33, T22S, R18E, M.D.B. & M.. [rev. Class 1 - 12/13/93]

Chemical Waste Management, Incorporated shall comply with all provisions and conditions of this Hazardous Waste Facility Permit (hereinafter called the permit). The permit consists of all the provisions and conditions contained in this cover document/signature page and in Attachment A.

This permit becomes effective immediately after it is signed by the Permitting Branch Chief, Region 1, Department of Toxic Substances Control (Department), and notice of the final permit decision is served to the Permittee, unless and administrative appeal is requested by anyone who filed comments on the draft permit modification #4 or participated in the public hearing. Individuals who did not file comments or participate in the public hearing may petition for review only of changes that were made in the draft permit modification #4 to produce the final decision. If the Permittee wishes to request an appeal, the petition for review of appeal shall be delivered to the Deputy Director of the Hazardous Waste Management Division no later than 30 days after service of notice of the final permit decision.

Should the Permittee appeal this permit or any condition thereof through any suitable forum of judicial or administrative law, all conditions shall remain in effect during pendency of the appeal unless expressly stayed by the Department. The permit shall remain in effect until December 31, 1997, unless revoked and reissued, terminated, or continued in accordance with Title 22, California Code of Regulations, Sections 66270.41, and 66270.43.

The provisions and conditions of this permit are severable, and if any provision or condition of this permit or the application of any provision or condition of this permit to any circumstance is held invalid, the application of such provision or condition to other circumstances and the remainder of this permit shall not be affected thereby.

The Department's issuance of this permit does not release Chemical Waste Management, Incorporated from any liability or duty imposed by federal or state statutes and regulations or local ordinances, except the obligation to obtain this permit. In particular, unless otherwise specifically provided in this permit, Chemical Waste Management, Incorporated shall comply with the provisions of Chapter 6.5 of Division 20 of the Health and Safety Code and Title 22, California Code of Regulations, Division 4.5.

The Department's issuance of this permit does not prevent the Department from adopting or amending regulations or issuing orders imposing requirements which are in addition to or more stringent than those in existence at the time this permit was issued. Chemical Waste Management, Incorporated shall comply with any such additional or more stringent requirements in addition to the requirements and conditions specified in this permit.

Where appropriate, this permit is subject to the State of California Health and Safety Code, Sections 25159.5 and 25159.6, relating to incorporation of federal regulations into state regulations.

In accordance with Title 22, California Code of Regulations, Sections 66270.1 (d), Waste Discharge Requirements, No. 86-121, issued to Chemical Waste Management, Incorporated on May 30, 1986, by the California Regional Water Quality Control Board - Central Valley Region are incorporated by reference into the permit. Subsequent Waste Discharge Requirements issued to Chemical Waste Management, Incorporated for the Kettleman Hills Facility during the term of this permit shall also be incorporated by reference into the permit.

The Hazardous Waste Facility Permit, dated December 31, 1982, issued to Chemical Waste Management, Incorporated by the Department of Health Services, including the modifications for the Drum Decant Unit, dated February 28, 1983, and the Cyanide Treatment Unit, dated September 28, is revoked. The Hazardous Waste Facility Permits for the Temporary Drum Storage Unit and the Interim Stabilization Unit, both dated June 28, 1986, are revoked.

Chemical Waste Management, Incorporated is permitted to treat, store, and dispose of hazardous waste in accordance with the conditions of this permit. Chemical Waste Management, Incorporated shall perform the hazardous waste management activity authorized by this permit in accordance with the plans and specifications approved by the Department. Any management of hazardous waste not authorized by in this permit is prohibited.

As between the Department and Chemical Waste Management, Incorporated, the provisions and conditions of this permit shall prevail in the event of any conflict between the permit and the requirements of the Consent Agreement and Final Order (Docket Nos. RCRA-09-84-0037 and TSCA-09-84-0009), including all modifications and supplemental orders.

The Department finds this permit to be in compliance with the California Environmental Quality Act (CEQA). An Environmental Impact Report (SCH #83090501) was prepared by CH2M Hill for use by the Kings County Planning Agency as part of the review process for Conditional Use Permit #1412. The Environmental Impact Report was accepted in October 1985 and the Conditional Use Permit was granted on the basis of overriding considerations per Section 15093 of the Public Resources Code. The Department prepared a Supplemental Environmental Impact Report (SCH #83090501), dated February

22, 1988, to explain certain differences in the descriptions of the facility between the Environmental Impact Report and the draft Hazardous Waste Facility Permit noticed for public review on July 24, 1987. The Hazardous Waste Facility Permit was issued on February 19, 1988, and a Notice of Determination was filed on February 23, 1988. The Department reviewed the Initial Study for the Evaporative Tank System prepared for the Kings County Planning Agency, dated September 19, 1988. The replacement of surface impoundment units with the Evaporative Tank System is the only change to the facility authorized by the permit which was not included in the Environmental Impact Report. The Department finds that the construction of the Evaporative Tank System does not significantly change the environmental impacts previously identified in the Environmental Impact Report.

James M. Pappas
Branch Chief
Facility Permitting Branch

6/30/94
Date

Attachment

APPENDIX B

HAZARDOUS WASTE FACILITY LICENSES
CHEM-NUCLEAR SYSTEMS, INC.

CHEM-NUCLEAR SYSTEMS, INC.

Steps changed since this document's previous revision level are indicated by two asterisks (**) in the left margin.

	PRINTED OR TYPED NAME	SIGNATURE	DATE
PREPARED BY:	Joseph J. Still	Joseph J. Still	3-18-96
REVIEWED BY:	Michael J. Benjamin	Michael J. Benjamin	3-18-96
APPROVED BY:	George E. Hurst		3/18/96
SRB APPROVAL:	Signature on File	Signature on File	

DOCUMENT TITLE:

BARNWELL WASTE MANAGEMENT FACILITY SITE
DISPOSAL CRITERIA CHEM-NUCLEAR SYSTEMS, INC.
BARNWELL OFFICE

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

TABLE OF CONTENTS
(Continued)

Page No.

1.0 SCOPE

1.1 Purpose

Chem-Nuclear Systems, Inc. (CNSI) accepts low-level radioactive waste (radwaste) material for disposal at the Barnwell Waste Management Facility (Site) based upon compliance with the requirements and references described in this document, "Barnwell Waste Management Facility Site Disposal Criteria" (Site Criteria). This document outlines the responsibilities of both the customer and CNSI and describes what constitutes an acceptable shipment for disposal at the Barnwell Site.

Any deviations from the requirements of the Site Criteria must be approved by the General Manager, Barnwell Site or designee to avoid refusal or additional surcharges.

1.2 Applicability

This document applies to any individual shipping radwaste to the Site and to CNSI personnel involved with shipping and receiving radwaste shipments for disposal at Barnwell. A copy of the Site Criteria should be retained by the customer's employees responsible for the packaging and shipping of radwaste to the Barnwell Site for disposal.

Any questions regarding the Site Criteria, CNSI Licenses, Prior Notification Plan or Waste Shipment Scheduling Plan should be directed to the Barnwell Licensing Department (Telephone: 803-259-1781) unless otherwise specified.

2.0 REFERENCES

All customers shipping radwaste material to the Barnwell Site shall comply with the following applicable documents:

2.1 CNSI's South Carolina Department of Health and Environmental Control (DHEC) Radioactive Materials License, No. 097

2.2 CNSI's United States Nuclear Regulatory Commission (NRC) Radioactive Materials License, No. 12-13536-01

2.3 U.S. Department of Transportation (DOT), Code of Federal Regulations, Title 49

2.4 U.S. NRC, Code of Federal Regulations, Title 10

2.5 S.C. DHEC Regulation 61-83, Transportation of Radioactive Waste Into or With South Carolina

2.6 U.S. NRC IE Information Bulletin No. 83-10.

3.0 GENERAL INFORMATION

3.1 Abbreviations

Abbreviations used in this document are defined in Appendix A.

3.2 CNSI Telephone Numbers

The telephone numbers of CNSI offices are listed in Appendix B.

3.3 Normal Hours of Operation

The normal hours of operation are Monday through Friday, 8:00 a.m. to 5:00 p.m.

3.4 Holidays

CNSI normally observes the following holidays and the Barnwell Site will be closed for business on the indicated dates or as specifically noted in separate correspondence:

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day and the day after
Christmas Day and the day before/after

The Site will normally be closed all three days during a three-day weekend holiday.

3.5 Pre-Shipment requirements

The Site accepts radwaste by public highway only. The following requirements shall be met before shipping any radwaste to the Site.

3.5.1 Before the receipt of any radwaste, a contract, purchase order or a written letter of authorization in form and substance acceptable to CNSI, certifying compliance with the Site Criteria, References 2.1 and 2.2, and any subsequent changes, should be in the possession of CNSI's Marketing Department.

3.5.2 Unless prior agreement has been made between CNSI Marketing and the customer, "collect" freight shipments shall not be accepted at the Site. Any demurrage charges shall be paid by the customer.

3.5.3 All waste generators, unless otherwise exempted by the State of South Carolina, shall have a valid S.C. Radioactive Waste Transport Permit (See Reference 2.5).

3.5.3.1 Before any shipper/generator transports or causes to be transported radioactive waste into the State of South Carolina, they shall purchase an annual Radioactive Waste Transport Permit, (RWTP), from South Carolina Department of Health and Environmental Control, (DHEC). Shipper/ generator shall ensure that the RWTP is current and valid.

3.5.3.2 All applications for RWTP shall be completed, signed and received by DHEC 30 days before shipping date.

3.5.3.3 Permit Fees will be annually determined and assessed by DHEC based on the following classifications:

3.5.3.3.1 Class X. More than an annual total of 75 cubic feet or more than 100 curies of radioactive waste for disposal within the State.

3.5.3.3.2 Class Y. An annual total of 75 cubic feet or less of radioactive waste consisting of less than 100 curies total activity for disposal within the State.

3.5.3.3.3 Class Z. Any shipment of radioactive waste which is not consigned for storage or disposal within this State, but is transported into or within the State.

Reference 2.5 and permit applications may be obtained from the following office:

S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Division of Radioactive Waste Management
Bureau of Solid and Hazardous Waste Management
2600 Bull Street
Columbia, S.C. 29201
Telephone: 803/896-4247 or 4240
Fax Number: 803-896-4242

3.5.4 All waste shippers shall obtain a Shipment Identification (ID) Number from the CNSI Barnwell Waste Shipment Scheduling Plan/Prior Notification Plan Department, (WSSP/PNP) prior to shipping.

3.5.5 The Shipment ID Number shall be placed on the proper shipping papers to provide verification to carriers and others involved in radwaste transport and the Site receiving personnel that the radwaste shipment has been authorized and space is available.

3.5.6 Radwaste shipments that arrive at the Site without a Shipment ID Number shall NOT be accepted.

3.5.7 All shipments shall meet the requirements of Reference 2.3 for acceptance at the Site.

NOTE: INDIVIDUAL WASTE CONTAINERS MAY BE INSPECTED TO DETERMINE CONTENT AND/OR PHYSICAL FORM.

3.6 Shipment Prior Notification

Shippers shall comply with all notifications (written and telephone) in accordance with Step 5.3.

3.7 Shipment Documentation

The following documents shall accompany the shipment:

3.7.1 The Barnwell Waste Management Facility's Radioactive Shipment Manifest Form, No. CNS-201, (RSM) (See Appendix G)

NOTE: BROKER/PROCESSORS ARE REQUIRED TO USE THE CNS-201-B MANIFEST FORM (RSM)

3.7.2 A Broker/Processor Form is required when more than one generator's waste is present in the shipment. (See Appendix C).

3.7.3 S.C. DHEC Radioactive Waste Shipment Prior Notification and Manifest Form (DHEC 802 Form).

NOTE: APPLICABLE ONLY TO SHIPMENTS GREATER THAN 75 CUBIC FEET AND/OR GREATER THAN 1 CURIE.

3.7.4 S.C. DHEC Radioactive Waste Shipment Certification Form (DHEC 803 Form).

3.7.5 Complete isotopic analysis printout or equivalent for aqueous filter media, filters and resins. (See Step 13.16).

3.7.6 Documentation Required for Class "C" Waste Shipment (See Appendix D).

3.7.7 Written statement of any unusual hazards and/or precautions that must be taken. (Refer to Step 13.14).

3.7.8 High Integrity Container Certification. (Refer to Step 13.15).

3.7.9 A DOE/NRC Form 741 for Special Nuclear Material (SNM) when required.

3.8 Offloading Schedule

3.8.1 All arriving shipments shall be offloaded in order of arrival.

3.8.2 Special shipments shall be offloaded in accordance with contractual or other arrangements made in advance.

3.8.3 Special casks and other shipments that require non-routine operations for offloading may be deferred in the offloading routine to an appropriate time for commencement of handling such as 8:00 a.m. of the next day.

3.8.4 License and criteria limitations, weather or Site ground conditions, darkness and crane availability are all key items that may cause delays or rearrangements of shipments in offloading.

3.9 Driver Check-In Procedure

3.9.1 Present shipping papers to Security guard at Main Gate Security.

3.9.2 Obtain tracking form and complete.

3.9.3 CNSI Security guard shall time stamp the driver's tracking form, RSM form and/or the Bill of Lading.

3.9.4 CNSI Security guards shall copy paper work and notify Compliance (Incoming) of shipment arrival.

3.9.5 Compliance personnel will obtain shipping papers and tracking form from CNSI Main Gate Security.

3.10 Delays

3.10.1 CNSI shall not be responsible for transport equipment detention or special equipment demurrage charges assessed by the carrier. Payment of detention charges shall be the responsibility of the customer.

3.10.2 CNSI assumes no responsibility for transport equipment delays or special detention charges assessed by the carrier due to weather delays, improper paperwork, special casks, non-routine offloads, decontaminating vehicles or containers, violation of Federal and/or state requirements or other shipment discrepancies.

3.11 Retrievability of Disposed Material

All materials disposed of at the Site become the property of the State of South Carolina. No provision or authority exists for material retrieval following disposal.

3.12 Equipment Storage

Loading, storage or exchange of pallets, liners or containers for third parties will not be accommodated at the Barnwell Site.

4.0 WASTE SHIPMENT SCHEDULING PLAN (WSSP)

4.1 General

4.1.1 Due to a yearly volume limitation imposed by the State of South Carolina, it has been necessary for CNSI to develop and implement a Waste Shipment Scheduling Plan.

4.1.2 Any questions regarding this plan should be addressed to the General Manager, Barnwell Site or designee.

4.2 Shipment Scheduling

4.2.1 Shipment scheduling shall be performed by the radwaste generator or his authorized agent.

4.2.2 All customers shall contact the CNSI WSSP/PNP Department to schedule shipments. A CNSI Shipment ID Number shall be assigned to each shipment.

4.2.3 All generators should schedule monthly waste shipments under Shipment ID Numbers by the 10th of the month that waste will be shipped to ensure appropriate availability of concrete vaults for immediate disposal.

5.0 PRIOR NOTIFICATION PLAN (PNP)

5.1 General

The Prior Notification Plan is required by Reference 2.5 and CNSI. Questions concerning DHEC notifications shall be directed to DHEC. DHEC 802 Form and DHEC 803 Form must be obtained from DHEC.

5.2 Instructions

5.2.1 Complete forms as indicated on the reverse side.

5.2.2 Shippers shall use the CNSI Shipment ID Number in Item 4 (Shipment Identification Number) of the DHEC 802 Form.

5.2.3 Distribute the DHEC 802 Form as follows:

5.2.3.1 One copy mailed or faxed to the DHEC office in Columbia, South Carolina.

5.2.3.2 One copy mailed or faxed to CNSI WSSP/PNP Department at Barnwell.

5.2.3.3 One copy to accompany the shipment.

5.2.4 A completed copy of the DHEC 803 Form shall accompany the shipment.

5.3 PNP Notifications

5.3.1 CNSI and DHEC must receive the 802 Form 72 hours prior to shipment being transported into or within the State of South Carolina.

5.3.2 Shippers shall keep CNSI's WSSP/PNP Department and DHEC (803-896-4243) informed of all data changes concerning the DHEC 802 Form and all shipment cancellations.

5.3.3 Shipment departure notification and updates shall be given to the CNSI's WSSP/PNP Department when the shipment leaves the customer's facility.

5.3.4 Shippers shall also provide the type of packages and the number of each type, i.e., B-25 boxes, 55-gallon drums, poly HIC overpacks, etc., to PNP during the departure notification call. Dimensions of odd size packages shall be provided.

NOTE: THE INFORMATION PROVIDED IN THE STEP ABOVE IS USED BY CNSI TO ORDER AND STAGE CONCRETE VAULTS IN THE APPROPRIATE TRENCH AND INSURE PROMPT DISPOSAL OF INCOMING WASTE SHIPMENTS.

5.3.5 CNSI's WSSP/PNP Department will update DHEC with the correct shipment identification number if the identification number is changed by CNSI or if the shipment is delayed until the following month.

6.0 RADIOACTIVE SHIPMENT MANIFEST (RSM) FORMS (CNS-201)

6.1 General

6.1.1 Unless otherwise approved by the Barnwell Licensing Department, only the CNSI RSM forms shall be accepted.

6.1.2 RSM forms are obtainable from the CNSI WSSP/PNP Department.

NOTE: ITEM 19 ON THE RSM CONTAINS A CERTIFICATION STATEMENT WHICH INDICATES THAT THE SHIPMENT HAS BEEN PREPARED IN ACCORDANCE WITH A RADIOACTIVE WASTE MANAGEMENT PROGRAM WHICH HAS BEEN APPROVED BY THE NUCLEAR REGULATORY COMMISSION OR A AGREEMENT STATE REGULATORY AGENCY. THIS CERTIFICATION MUST BE SIGNED BY THE WASTE GENERATOR OR THE WASTE GENERATOR'S AGENT.

6.1.3 RSM Forms are inspected by CNSI personnel and the on-site DHEC official prior to shipment acceptance. Other state and federal regulatory agency inspections may also be performed.

6.1.4 Improperly prepared RSM Forms will result in acceptance delays or refusal of the shipment.

6.1.5 A signed copy of the shipment manifest shall be returned to the shipper within seven days after the shipment has been accepted for disposal at the Site.

6.1.6 A letter indicating that the shipment has been received will be sent to the shipper within seven days should acceptance be delayed. (i.e.: inclimate weather, etc.)

6.2 Instructions

6.2.1 RSM forms shall be completed per instructions located on the reverse side of the form and in accordance with Section 6.4 below.

NOTE: **SEE SECTION 6.4 FOR COMPLETING MANIFEST CONTINUATION SHEET WHENEVER AN INDIVIDUAL DISPOSAL PACKAGE CONTAINS MORE THAN ONE WASTE FORM (I.E., DRUM CONTAINING DEWATERED RESIN AND DEWATERED FILTERS). AN EXAMPLE OF COMPLETED FORM IS PROVIDED IN APPENDIX G.**

6.2.2 The disposal site copy of RSM forms shall accompany the shipment.

6.3 Special Considerations

6.3.1 All totals shown on the RSM form shall match all accompanying paperwork for a given shipment.

6.3.2 All disposal volumes, activity, etc., shall be accurate when shipment is received for burial. The activities and weights on the continuation sheets should equal the totals listed on the manifest cover sheet. If any changes are to be made after waste has been disposed, the generator shall make a written justification for necessity of change and an additional handling fee may be charged.

6.3.3 The weight listed on the RSM form must be as accurate as possible since it is used by CNSI personnel to select the proper offloading technique for the particular package. Failure to list correct package weight could result in personnel injury and/or equipment damage and/or DHEC investigation. Discrepancies of this type could result in a substantial penalty charge.

6.3.4 To determine the container volume or displacement volume of the package, refer to Step 7.0.

6.3.5 The customer shall provide a written statement on or attached to the RSM form listing any unusual hazards. See Step 13.14.

NOTE: **PRIOR TO SHIPMENT, NOTIFICATION OF UNUSUAL HAZARDS SHALL BE MADE TO THE BARNWELL LICENSING DEPARTMENT.**

6.3.6 Additional dose rate information should be provided on the RSM if it is other than the highest dose rate on the disposable container. (i.e., 2000 mR/hr on top of liner).

6.4 Individual Packages Containing Multiple Waste Forms

6.4.1 Use manifest continuation sheets as necessary to fully describe each waste form within each disposal package. A list of waste forms is located on Page 2 of Appendix C.

6.4.2 List the radionuclides present in each waste form.

6.4.3 List the percent of activity or millicurie content of each radionuclide in each waste form.

6.4.4 List the total millicurie content for each waste form.

6.4.5 Indicate the physical form of each waste form.

6.4.6 Indicate the chemical form of each waste form. If the waste form contains chelating agents in quantities greater than 0.1%, list the names and their weight percentages.

6.4.7 Describe each waste form. If the material is solidified, indicate what solidification media was used.

6.4.8 List the classification of each waste form, either AU, AS, B or C.

6.4.9 Provide gram weight of the Special Nuclear Material, (SNM), if present in the waste form.

6.4.10 Provide source pounds of source material if present in the waste form.

6.4.11 Provide the total weight of the disposal package and its content.

6.4.12 Provide the cubic footage for each waste form. The combined cubic footage shall equal the total volume of the disposal container.

6.4.13 List the type of disposal container used, (i.e., steel drum, wooden box, HIC, etc.).

6.4.14 Record the highest measured radiation level for each disposal container surface. Package surface may be the same as disposal container if a cask is not used. Transport Index (TI) is applicable only to the actual N.R.C. or D.O.T. shipping package, (i.e., cask, drum, box, etc.) and not to liners and drums shipped inside of cask or other packages.

6.4.15 Record the results of contamination surveys performed on the disposal containers. Do not use "BKG" for background levels unless the background level is indicated in this column.

** 6.4.16 Record the appropriate LSA or SCO group.

6.4.17 Record the type of D.O.T. labels or markings are used on each container such as: Radioactive W-I, Y-II, Y-III, Radioactive LSA, etc.

7.0 VOLUME MEASUREMENT CRITERIA

7.1 Disposal charges shall be based on the total displacement volume of the package utilized.

7.2 Standard shaped packages, (square, rectangular, cylinder), shall be sized using routine external measurements. Displacement volumes of steel drums up to 110 gallons and standard B-25 boxes are provided in Appendix E.

7.3 The volume of any odd-shaped package (i.e., with protrusions, legs, flanges, etc.), shall be agreed to by CNSI Marketing and the customer prior to shipment. Odd-shaped packages received on Site without prior agreement of total displacement volume shall be measured by CNSI and disposal charges shall be assessed accordingly.

7.4 Box shipments are routinely measured by CNSI. Measurements taken are rounded to the nearest one-half inch.

7.5 The maximum box size (including lifting lugs, skids, etc.) shall be 9' 4" l x 7' 6" w x 9' 2" h with a maximum package weight of 54,000 pounds.

NOTE: ANY PACKAGES EXCEEDING THE DIMENSIONS OR WEIGHT IN THE STEP ABOVE SHALL HAVE PRIOR APPROVAL BEFORE SHIPMENT.

7.6 External bracework is included in total gross box measurements and displacement volume calculations. These pieces will hold one box away from another creating void space which cannot be utilized. In the case of bulging boxes, the measurements are taken at the bulge. (The bulge will keep the box from being "snugged" up against another and may constitute the use of additional vaults).

NOTE: BULGING BOXES MUST MAINTAIN COMPLETE COMPLIANCE WITH REFERENCE 2.3.

7.7 Skids or pallets are not included in the measurements.

7.8 The individual container volume is rounded off to the nearest tenth of a cubic foot. (128.64 cubic feet would be 128.6 cubic feet).

7.9 Cylindrical liner measurements are based on the outside maximum diameter and the maximum planar height.

8. WASTE CLASSIFICATION AND PACKAGING

8.1 All shipments received at the Barnwell Site shall be properly classified and marked in accordance with 10 CFR 61.55. The waste class (A-U, A-S, B or C) shall be durably marked on top of the disposable container and clearly legible.

NOTE: STABLE WASTE - WASTE THAT IS BY FORM STABLE (I.E., METAL REACTOR COMPONENTS) OR HAS BEEN RENDERED STABLE BY PLACEMENT IN A HIGH INTEGRITY CONTAINER OR BY PROCESSING WITH AN APPROVED SOLIDIFICATION MEDIA. AN APPROVED MEDIA IS ONE FOR WHICH SPECIFIC APPROVAL HAS BEEN GRANTED BY DHEC. ANY SUCH PROCESSING WITH A MEDIA MUST ELIMINATE VOID SPACES IN CONTAINERS TO THE EXTENT PRACTICABLE.

UNSTABLE WASTE - ALL OTHER WASTE THAT COMPLIES WITH ALL OTHER LICENSE REQUIREMENTS EXCEPT THOSE LISTED FOR STABLE WASTE.

ALL WASTE CONTAINERS SHALL BE FILLED TO NO LESS THAN 85% EXCEPT FOR WASTE PACKAGED IN APPROVED HIGH INTEGRITY CONTAINERS OR WASTE COMPRISED OF IRRADIATED METAL FOR DISPOSAL IN THE SLIT TRENCH.

8.2 Additional information for Class C waste shipments shall be provided in accordance with Appendix B. Class C documentation must be received by the Barnwell Licensing Department prior to shipment.

NOTE: ALL WASTE MUST BE DISPOSED IN CONCRETE VAULTS UNLESS SPECIFICALLY APPROVED BY S.C. DHEC.

8.3 Radwaste containing Special Nuclear Material (SNM) shall comply with Step 13.10.

8.4 Each disposable container shall be marked/labeled with one of the following waste classifications: Class A-U (unstable), Class A-S (stable), Class B or Class C.

NOTE: THE RSM FORM SHALL INDICATE THE WASTE CLASS AS: A-U, A-S, B OR C FOR EACH DISPOSABLE CONTAINER LISTED.

8.5 The package identification and other required marking and labeling shall be clearly visible on the shipping package. Special emphasis should be directed to this whenever wrapping materials are placed on the shipping package.

8.6 The waste classification for disposal packages that contain two or more inner packages shall be determined for each inner container. The most restrictive classification shall be indicated on the outer disposal container. (Example: Overpack containing one Class A Stable and one Class C drum shall be marked as Class C waste).

8.7 Cardboard boxes, corrugated paper drums, etc., are NOT acceptable containers for disposal.

8.8 Unless otherwise authorized by the Barnwell Licensing Department, radwaste shall be contained in wooden or steel containers or S.C. DHEC approved high integrity containers.

NOTE: DISPOSAL CONTAINERS SHALL NOT BE CORRODED TO THE POINT OF CONTAINER DEGRADATION. CONTAINERS HAVING MINOR SURFACE RUST ARE ACCEPTABLE, BUT SHALL MEET AS A MINIMUM, STRONG TIGHT CONTAINER CRITERIA.

8.9 All wooden boxes shall be banded with metal bands.

8.10 Boxes shall be of waterproof construction or properly covered during transit.

8.11 The maximum box size (including lifting lugs, skids, etc.) shall be 9' 4" l x 7' 6" w x 9' 2" h with a maximum package weight of 54,000 pounds.

8.12 All boxes must be equipped with skids or non-returnable lifting devices.

8.13 Drums or other containers filled with non-radioactive materials shall NOT be used for shielding.

8.14 Any supplemental shielding, interior or exterior to the shipping container shall have approval from the Barnwell Licensing Department prior to shipping.

8.15 A van is not considered a shipping container.

9.0 VAN SHIPMENTS

9.1 Drums

9.1.1 Open-top vans or flatbed trailers are the preferred method for shipment of drums.

9.1.2 Drums weighing 1000 pounds or less shall not be shipped on pallets without prior approval.

9.1.3 Drums exceeding 1000 pounds shall be provided with appropriate lifting devices which have been approved by CNSI before shipment.

9.1.4 Drums weighing greater than 1000 pounds with appropriate lifting devices shall be segregated within the same shipment from drums weighing less than 1000 pounds. Drums of different sizes shall also be segregated within the same shipment.

9.1.5 Drums shall not be placed on their sides.

9.1.6 Drum rings and bolts shall be secured properly and be structurally strong enough to support the weight of the drum while offloading.

9.1.7 Lever-lock closure devices shall have prior approval before receipt.

9.1.8 Drums shall comply with Reference 2.3. Bulging lids shall not exceed height of closure ring; bulging bottoms shall not extend below bottom ring of drums.

9.1.9 Drums may be double stacked with proper bracing, provided the heavier drums are on the bottom.

9.1.10 Class A waste shall be segregated from Class B or Class C waste in the same shipment. Class A Unstable waste and Class A Stable is not required to be segregated.

9.1.11 Small drums should be stacked in reasonable quantities so that a Radwaste Technician may remove the highest container without need of a platform.

9.1.12 Heaviest containers shall be on the bottom.

9.2 Packages Weighing Less Than 8,000 Pounds (CNSI Forklift Capacity)

9.2.1 Each package shall have a minimum clearance of three inches from the van walls.

9.2.2 Packages shall be elevated with skids from the van floor and accessible to a forklift. The use of two 2" X 4" boards nailed together is acceptable.

9.2.3 Each package shall have a top clearance of at least twelve inches in a closed van.

9.2.4 Steps 9.2.1 through 9.2.3 are not applicable to drums.

9.2.5 Dunnage used to establish spacing is considered sacrificial.

9.2.6 Package weight (See Step 6.3.3).

9.3 Packages Weighing More Than 8,000 Pounds

** 9.3.1 The maximum box size (including lifting lugs, skids, etc.) shall be 9' 4" l x 7' 6" w x 9' 2" h with a maximum package weight of 54,000 pounds.

9.3.2 Packages shall be provided with properly attached lifting devices.

9.3.3 Lifting devices shall be secured to the top of packages and be readily available for easy access.

9.3.4 Packages shall not be shipped in a closed, hard-top vehicle.

9.3.5 Each package shall have a minimum clearance of three inches from the van walls.

9.3.6 Shipments with boxes weighing more than 8,000 pounds and drums shall be segregated.

9.3.7 Package weight (See Step 6.3.3).

9.3.8 Steps 10.2 and 11.13 are applicable.

9.4 Mixed Shipments (Drums, Boxes, Liners, etc., Containing Class A, B and C Waste)

9.4.1 Mixed shipments shall comply with Steps 9.1 through 9.3 as applicable.

9.4.2 Only Class A Unstable waste shall be segregated from Class B and Class C waste when shipped together on the same shipment.

9.4.3 When Class A Unstable waste is on the same shipment with Class B and/or Class C waste, the shipping papers shall list the location of the waste in the shipment.

EXAMPLE: "CLASS A UNSTABLE WASTE LOCATED IN THE FRONT WITH THE CLASS B IN THE REAR." THIS IS TO BE INDICATED ON THE BOTTOM OF THE RSM FORM.

9.4.4 Do not stack drums on boxes or boxes on drums.

9.4.5 Drums or boxes may be loaded in the forward section of the van with definite segregation of the two types of containers. (Preferably drums loaded in forward section of van).

9.4.6 Improperly mixed shipments shall result in an additional offloading charge or refusal of the shipment.

10.0 FLATBED TRAILER SHIPMENTS

10.1 Flatbed trailer shipments shall comply with Step 9.0 as applicable.

10.2 Packages with attached lifting devices are not required to have bottom clearance.

10.3 Boxes less than 8,000 pounds and/or drums shipped on flatbed trailers must be loaded in such a manner that they may be offloaded from the side using a forklift.

11.0 CASK SHIPMENTS

11.1 Customers using a licensed cask not owned by CNSI shall ensure that CNSI is a "Registered User" of the licensed cask prior to shipment to the Barnwell Site. This applies to all shipments requiring licensed packages.

11.2 All shipments shall strictly comply with the applicable Certificate of Compliance for the cask in use (lid torquing, sealing gaskets, weight restrictions, shoring requirements, etc.).

11.3 Failure to observe appropriate requirements shall result in the submission of noncompliance information to the appropriate regulatory agency.

11.4 Liners containing "Grapple Bails" are to be identified under the liner type section of the RSM.

** 11.5 All drums shall be palletized and pallets shall have proper lifting devices attached. Boxes shall be equiped with appropriate lifting devices or palletized.

** **NOTE: DRUMS WITH DOSE RATES GREATER THAN 1 R/HR SHALL BE SHIPPED IN A CASK ON PALLETS AND WILL BE DISPOSED WITH THE PALLET.**

11.6 Disposable container and/or pallet shall have the lifting device secured at the top of the container(s). This is to prevent the cable from becoming caught under or between the container(s) or pallet.

NOTE: LIFTING DEVICES SHALL BE OF SUFFICIENT LENGTH TO ALLOW RETRIEVAL AND CRANE HOOK-UP WITHOUT PHYSICALLY ENTERING THE CASK. THE BARNWELL LICENSING DEPARTMENT SHALL BE NOTIFIED PRIOR TO SHIPMENT OF ANY LIFTING DEVICE SUPPLIED WITH THE DISPOSAL CONTAINER THAT HAS BEEN ALTERED, REMOVED OR REPLACED.

11.7 For shipments consisting of high integrity container drums, the pallets on which the drums are placed are considered sacrificial since the pallets are used for proper placement in the concrete vaults.

11.8 When using pallets, the containers shall be positioned to remain balanced and stable on the pallet when lifted clear of the cask.

11.9 Class A Unstable waste shall not be placed on the same pallet with Class B or C waste. Class A Unstable waste and Class B or Class C waste may be placed in the same cask, but an additional charge will be added. The location of the waste shall be noted on the RSM form.

11.10 When tall, slender containers (i.e., demineralizers) are loaded on a pallet inside the cask, the containers shall be tied or secured together at the tops to prevent containers from falling off the pallets during offloading.

NOTE: THIS IS NOT REQUIRED FOR A SINGLE TIER OF DRUMS, I.E.: 55-GALLON, 83-GALLON ETC. WHICH ARE PLACED ON A PALLET.

11.11 Palletized drums inside a cask shall be loaded to prevent movement in such a manner that any shifted position of drums on the pallet will not increase radiation levels measured outside the cask. (Dunnage shall be removable with palletized loads).

11.12 A shipment consisting of individual disposal containers not on pallets shall have attached to each container a lifting device that will allow offloading by a single lift. **EXAMPLE:** Shipping 4 demineralizers without a pallet would require the use of a "D" ring with a 4-part spreader (spider). Each leg of the spider would be attached to one of the disposal containers lifting slings.

11.13 Lifting slings attached to disposal containers or pallets are considered sacrificial and are not returnable.

12.0 CONTAMINATION LIMITS OF PACKAGE/VEHICLE

12.1 General

12.1.1 All shipments received at the Barnwell Site shall comply with contamination control limits of Reference 2.3.

12.1.2 Loose contamination on and between packages that may be obscured by various barriers (i.e., impact limiters, base plates, etc.) shall be considered. Contamination limits for the package, the barrier and the vehicle shall comply with References 2.3 and 2.6.

12.1.3 The receipt of excessive surface contamination on containers in casks or otherwise, is very undesirable from the standpoint of site cleanliness and contamination control. Customers should use all means at their disposal to ship containers with minimal surface contamination.

12.1.4 Notify the Barnwell Licensing Department prior to shipment of any smearable contamination on the disposal container and/or cask interior surface exceeding 50,000 dpm/100 cm^2 beta-gamma and/or 2200 dpm/100 cm^2 alpha.

12.1.5 Disposal containers that have been wrapped to prevent the spread of loose contamination shall have, prior to shipment, approval from the Barnwell Licensing Department.

NOTE: THE CUSTOMER SHALL NOTIFY THE BARNWELL LICENSING DEPARTMENT PRIOR TO DEPARTURE OF ANY SHIPMENT IN WHICH THE POTENTIAL EXISTS FOR AIRBORNE CONTAMINATION AND/OR EXCESSIVE SMEARABLE CONTAMINATION IS PRESENT. FAILURE TO PROVIDE TIMELY INFORMATION MAY RESULT IN SUBSTANTIAL SURCHARGES OR REFUSAL OF THE SHIPMENT.

12.2 Floor Covering

Plywood or other materials that are placed over the transport vehicle's flooring for contamination control shall be considered sacrificial, but will not be considered part of the burial volume. Time and/or supplies for floor covering removal will be chargeable.

12.3 Decontamination Prior to Release

Vehicles exiting the CNSI site shall be decontaminated to release limits described in Step 12.4 prior to release. Charges for decontamination services to comply with these levels shall be assessed as necessary.

12.4 Contamination Release Limits for Vehicles Exiting the Barnwell Site

12.4.1 Enclosed vehicles used solely for the transport of radioactive materials (Exclusive Use) and properly marked "For Radioactive Materials Use Only."

12.4.1.1 Fixed contamination shall not exceed 10 mR/hr on contact with the interior surface or 2 mR/hr at one meter from the interior surface.

12.4.1.2 Fixed contamination shall not exceed 0.5 mR/hr at any exterior accessible surface.

12.4.1.3 Removable contamination shall not exceed 220 dpm/100 cm^2 alpha and 2200 dpm/100 cm^2 beta-gamma in the interior or on the exterior of the vehicle.

12.4.2 Enclosed vehicles used solely for transport of radioactive material (Exclusive Use) and NOT marked according to 12.4.1

12.4.2.1 Fixed contamination shall not exceed 0.5 mR/hr at any accessible surface.

12.4.2.2 Removable contamination for beta-gamma shall not exceed 2200 dpm/100 cm^2.

12.4.2.3 Removable contamination for alpha shall not exceed 220 dpm/100 cm^2.

12.4.3 Empty Casks

12.4.3.1 Fixed contamination shall not exceed 0.5 mR/hr at any accessible exterior surface unless cask is properly labeled and a completed Radioactive Shipment Record (RSR) accompanies the cask.

12.4.3.2 Removable external contamination for beta-gamma shall not exceed 2200 dpm/100 cm^2.

12.4.3.3 Removable external contamination for alpha shall not exceed 220 dpm/100 cm2.

12.4.4 All Vehicles or Items for Unconditional Release

12.4.4.1 Fixed contamination shall not exceed 0.1 mR/hr at any accessible surface.

12.4.4.2 Removable contamination for beta-gamma shall not exceed 220 dpm/100 cm^2.

12.4.4.3 Removable contamination for alpha shall not exceed 22 dpm/100 cm^2.

13.0 SPECIAL CATEGORIES

13.1 Dry Active Waste

Dry Active Waste (DAW) consists of paper, plastics, contaminated metals, soil, building rubble, air filters, etc.

13.1.1 Dry active Waste (DAW) must be packaged and classified for disposal in accordance with Reference 2.1 and Section 8.

13.1.2 DAW containing isotopes with greater than 5 year half-lives having a total specific activity greater than 1 µCi/cc requires stabilization. DAW exceeding this limit which has not been stabilized will require DHEC approval. Submittals must be made to the Barnwell Licensing Department.

13.2 Biological Material

13.2.1 Plants, animals and by-products thereof are considered biological material. Glassware, etc., that at one time contained these materials may also be considered biological. All biological waste shall be packaged in accordance with this Section.

NOTE: BIOLOGICAL WASTE CONTAINING ISOTOPES WITH GREATER THAN 5 YEAR HALF-LIVES HAVING A SPECIFIC ACTIVITY OF GREATER THAN 1µCi/cc MUST BE STABILIZED.

13.2.2 The inner container having a capacity of 55-gallons or less shall be in good condition and shall as a minimum comply with DOT specifications for a strong tight container.

13.2.3 The inner container shall have a watertight liner (i.e., polyethylene or equivalent) of at least 4 mils thickness.

13.2.4 The biological material shall be placed in the inner container and thoroughly layered with absorbent and slaked lime.

13.2.4.1 The lime used shall be commercially available slaked lime.

13.2.4.2 The absorbent used should be agricultural grade four vermiculite or medium grade diatomaceous earth.

NOTE: OTHER ABSORBENT MATERIALS MAY BE ACCEPTABLE WITH DHEC APPROVAL.

13.2.4.3 The addition of lime and absorbent to biological material should be in a ratio of one part lime to ten parts absorbent to thirty parts biological material.

13.2.4.4 The addition of formaldehyde is strictly prohibited.

13.2.5 The watertight liner shall be hermetically (airtight) sealed by taping, tying or heat sealing.

13.2.6 The seal on the inner container is crucial to proper containment and shall be made in the following manner.

13.2.6.1 The ring-and-bolt equipped containers shall be closed with an appropriate wrench.

13.2.6.2 Lever locks are not acceptable.

13.2.7 The inner container shall be placed upright in an outer container.

13.2.8 The outer container shall be a new or properly recertified steel 17-H DOT specification container or equivalent.

13.2.9 The bottom of the outer container shall be covered with a minimum of four inches of absorbent material.

13.2.10 After the inner container(s) is/are placed in the outer container, the void space shall be filled with additional absorbent material.

13.2.11 Unless otherwise approved by DHEC, the volume of the outer container must be at least 1.5 times the volume of the inner container.

13.2.12 A refrigerated van shall be used to ship biological radwaste between April 1 and October 1, if transit time will exceed 48 hours from the time the biological radwaste is first removed from cold storage until arrival at the Site.

13.3 Gaseous Waste

13.3.1 Krypton 85 and Xenon 133 are acceptable in DOT specification cylinders or NRC approved sealed sources with internal pressures less than 1.5 atmospheres and less than 100 curies per container.

13.3.2 Sealed Tritium gas sources are acceptable provided:

13.3.2.1 The source is approved by the U.S. Nuclear Regulatory Commission or an agreement state.

13.3.2.2 The maximum activity per disposal container must not exceed 1000 curies.

13.3.2.3 The sources/devices must be received intact to provide additional physical protection to the primary tritium source containment.

13.3.2.4 Sources requiring stabilization as determined by waste classification, (using the volume of the sealed source only), are placed in high integrity containers or encapsulated with an appropriate stabilization media.

13.3.2.5 The internal pressure of each source is less than 1.5 atmospheres.

13.3.2.6 Methods used for stabilizing these sources shall be approved by the Barnwell Licensing Department prior to shipment.

13.4 Sealed Sources or Special Form Radioactive Materials

13.4.1 Sealed sources or special form radioactive material must have approval from the Barnwell Licensing Department, and may require specific approval from S.C. DHEC prior to acceptance for disposal.

13.4.2 Cement encapsulation of sealed sources to achieve stability may be acceptable provided the encapsulation method is approved by the Barnwell Licensing Department.

13.4.3 The encapsulation method must consist of a minimum of 4 inches of structural grade cement (2500 p.s.i. or greater) that surrounds the sources on all sides.

13.4.4 Waste classification for sealed sources is based on the actual source volume. Volumes for source housings or encapsulation media shall not be included.

13.5 Liquid Radioactive Waste

13.5.1 No liquid waste or solid waste containing liquids shall be received at the Barnwell Site.

13.5.2 Solidified liquid waste may be accepted provided it is solidified with one of the following solidification media:

13.5.2.1 Vinyl Ester Styrene

13.5.2.2 Cement

13.5.2.3 Bitumen

13.5.2.4 Vinyl Chloride

13.5.2.5 Aquaset II-H (Class A-U waste only)

13.5.2.6 Petroset H (Class A-U waste only)

NOTE: SOLIDIFIED OIL IS NOT ACCEPTABLE FOR DISPOSAL (SEE STEP 13.8).

13.5.2.7 Or other media approved by CNSI and S.C. DHEC.

13.5.3 Hazardous organic solutions, solidified or otherwise, are not acceptable for disposal at the Site.

13.6 Wastes Containing Free Standing Liquids

13.6.1 Evaporator bottoms or concentrates, residues, sludges, or other waste which may contain free standing liquids must be solidified in accordance with Condition 33 of License 097, and meet the requirements as specified in Condition 32 of License 097.

13.6.2 Wastes that have been processed to contain no free standing water and are not free flowing are acceptable for disposal when processed by a method specifically approved by S.C. DHEC prior to shipment.

13.7 Scintillation Products and Containers

13.7.1 Toluene, xylene, dioxane, scintillation liquids which exhibit hazardous properties or other organic liquids or solids with similar chemical properties are prohibited except as specified below:

13.7.1.1 Containers which have contained any of the liquids mentioned above are acceptable for disposal after treatment as specifically authorized by the Department.

13.7.1.2 The ash and/or residue from the incineration of these wastes are acceptable in accordance with Condition 45 of License 097.

13.7.2 Solidified or processed waste containing non-hazardous scintillation products may be acceptable provided the scintillation products have been approved by S.C. DHEC.

13.7.2.1 Scintillation products that have received S.C. DHEC approval shall be identified by product name on the shipment manifest.

13.7.2.2 Currently the following scintillation products have been approved by S.C. DHEC for disposal: Ecoscint A, Ecoscint O, Opti-fluor, Ultima Gold, Ultima Gold LLT, Ready-Safe, Ready Cap, Ready Filter and Meltilex. Additional products may be acceptable provided they are approved by S.C. DHEC.

13.8 Oil

13.8.1 Petroleum based oils, regardless of waste form, are not acceptable for disposal at the Barnwell site.

13.8.2 Waste containing incidental or trace amounts of absorbed oil are acceptable, provided they do not exceed one percent (1%) of waste volume in a container; however, waste streams can not be blended or mixed to obtain compliance.

13.8.3 Synthetic oils may be acceptable provided they have been approved by S.C. DHEC.

13.9 Pyrophoric Materials or Flammable Solids

13.9.1 Pyrophoric or flammable solid material contained in waste shall be made inert to prevent self ignition during transport and disposal.

13.9.2 The inerting process shall be approved by the Barnwell Licensing Department prior to shipping.

13.9.3 No material that might react violently with water or moisture shall be accepted for disposal at the Barnwell Site.

13.10 Special Nuclear Material (SNM)

NOTE: SPECIAL NUCLEAR MATERIAL (SNM) MEANS PLUTONIUM (Pu), U-233, OR URANIUM ENRICHED IN U-233 OR U-235.

13.10.1 All SNM waste shall be packaged and reported in accordance with Reference 2.1 and 2.2 and Section 3.7 of this procedure.

13.10.2 Waste containing plutonium must meet the requirements of Condition 40 of Reference 2.1. Waste not meeting these

requirements will require specific approval by S.C. DHEC and US NRC.

13.10.3 The Barnwell Licensing Department shall be notified prior to shipping SNM waste containing greater than 0.1 percent by weight chelating agents as determined prior to processing.

13.10.4 The surface area on any side or projected plane of a package containing U-235 shall be 2 ft^2 or greater. Only 55-gallon drums and larger packages are acceptable without approval.

13.10.5 Shippers having individual packages in excess of 100 grams of U-235 shall have on file with the Barnwell Licensing Department a statement indicating the percent confidence in their shipping values.

13.10.6 The Barnwell Licensing Department shall be notified prior to shipment of SNM packages exceeding 100 grams of U-235 in which the confidence in shipping value is less than 95 percent.

13.10.7 No single package shall contain more than 200 grams of U-233 or 350 grams of U-235. For packages containing a combination of U-233 and U-235, the sum of the ratios of the individual quantity of each SNM radionuclide to the quantity specified above for that radionuclide shall not exceed unity.

13.10.8 A vehicle shall not contain more than 4500 grams of U-235 or 200 grams of U-233.

13.11 Hazardous Chemicals

13.11.1 Waste material containing hazardous chemicals/agents and radioactive materials shall be acceptable for disposal only when the radiological hazard clearly exceeds the toxic chemical/agent hazard.

13.11.2 All shipments shall comply with Reference 2.1 regarding the assessment of chemical versus radiological hazards.

13.11.3 When any determination has been made as to the classification of the hazard, an independent evaluation of the radiological, biological and chemical hazards shall be performed and the reports shall be submitted to the Barnwell Licensing Department for review prior to shipment.

13.11.4 CNSI shall receive, review and maintain on file all reports of evaluations for DHEC review.

13.11.5 Upon completion of review and comment, the reports, if necessary, will be submitted by CNSI to DHEC for evaluation as to the acceptability of the waste material for disposal.

13.12 Transuranics (Elements with Atomic Numbers greater than 92)

13.12.1 Waste containing transuranic nuclides are acceptable provided the following conditions are met.

13.12.1.1 The concentration limits specified in Reference 2.1 are not exceeded.

13.12.1.2 The transuranic nuclides are evenly distributed within a homogeneous waste form.

13.12.1.3 The transuranic content is incidental to the total activity. For purpose of License 097, Condition 40, incidental is defined as up to one percent (1%) of total activity specified in curie or millicuries.

13.12.2 Each transuranic nuclide must be identified on the RSM.

13.12.3 Packages containing transuranics which are plutonium isotopes must comply with Section 13.10.

13.12.4 Smoke or gas detectors containing Americium-241 foils which exceed the limits specified in Reference 2.1 are acceptable for disposal provided the entire detector is received for disposal.

13.12.5 In-core detectors or other such devices which contain transuranics require approval by the Barnwell Licensing Department prior to shipping.

13.13 Uranium Oxide

Uranium oxide shipments are subject to heavy external contamination of containers. Precautions shall be taken to ensure that the shipping container contamination will be less than the limits specified in Reference 2.3.

13.14 Unusual Hazards

13.14.1 The shipper of radioactive material shall notify the Barnwell Licensing Department prior to departure of any shipment in which the possibility exists for unusual hazards.

13.14.2 Barnwell Licensing shall obtain approval of the General Manager, Barnwell Site, or designee before authorizing the departure of any shipments with unusual hazards to the Site.

13.14.3 The shipper shall provide a written statement on or attached to the RSM Form containing information as to unusual hazards.

13.14.4 Wind, weather or other unusual circumstances may delay offloading this type shipment.

13.14.5 Unusual hazards include, but are not limited to, the presence of neutron sources or neutron emitters in the shipment, spills in or on shipping containers or vehicles, excessive external contamination levels on disposable containers (See Step 12.1.4), any non-routine waste processing event, any damage which has occurred to a disposable container or lifting device, etc.

13.15 High Integrity Containers

13.15.1 Only high integrity containers approved by S.C. DHEC are acceptable for burial at the Site. Shippers shall ensure that a copy of the Certificate of Compliance (C of C) for the approved high integrity container as issued and amended by DHEC is on file with the Barnwell Licensing Department.

** 13.15.2 All high integrity containers shall be disposed in approved concrete vaults.

13.15.3 The Barnwell Regulatory Affairs/Licensing Department shall have signed documentation on file from the shipper or notification from DHEC that the shipper has received and will adhere to the requirements of the C of C.

13.15.4 A certification that the shipper has stored, handled and used the high integrity container in accordance with the C of C shall accompany the shipment to the Barnwell Site.

13.16 Filters/Filter Media

For each shipment containing resin or other aqueous filter media (including filters), a complete isotopic analysis shall be provided with the shipment. The analysis shall identify the following:

13.16.1 Disposal package number

13.16.2 Waste description

13.16.3 Radionuclides present

NOTE: FILTERS (I.E. FUEL POOL FILTERS) WHICH HAVE THE POTENTIAL TO CONTAIN ACTIVATED METAL IN THE FORM OF SHAVINGS MUST BE CLASSIFIED WITH CONSIDERATION GIVEN TO CONCENTRATIONS OF ^{59}Ni, ^{94}Nb, ^{14}C AND ^{63}Ni IN ACTIVATED METAL.

13.16.4 Total curie content

13.16.5 Resin/filter media volume (cc or Ft^3)

13.16.6 The specific activity of each radionuclide and the total radionuclide concentration shall be expressed in microcuries/cubic centimeter or curies/cubic meter and transuranic radionuclides in nanocuries/gram.

NOTE: THESE REQUIREMENTS ARE NOT APPLICABLE TO AIR FILTERS (SEE SECTION 13.1)

13.17 Slit Trench Shipments

13.17.1 Cask shipments which are required to be offloaded using the horizontal offload technique shall have approval of the General Manager, Barnwell Site or designee prior to shipping.

13.17.2 Horizontally offloaded shipments shall have the liner removal device approved by the General Manager, Barnwell Site or designee, prior to shipping.

13.17.3 All slit trench shipments will be placed in concrete vaults for disposal.

13.18 Chelating Agents

13.18.1 Waste containing chelating agents with concentrations in its final waste form greater than 0.1 percent but less than 8 percent by weight is acceptable, provided it is stabilized with one of the solidification agents specified in Reference 2.1. These wastes are only acceptable as Class A-S, B or C.

13.18.2 Waste containing chelating agents greater than 8 percent by weight, is not acceptable.

13.18.3 The name and percent of chelating agents in the waste shall be listed on the RSM form.

13.18.4 Dewatered waste containing chelating agents in concentrations ranging from 0.1 to 8.0 percent by weight will be accepted for disposal provided the following are met.

13.18.4.1 The waste is placed in a high integrity container (HIC).

13.18.4.2 The waste contains less than 1% free standing liquid by waste volume.

13.18.4.3 The HIC is disposed in a concrete vault regardless of waste classification.

13.19 Lead

Non-radioactively contaminated lead specifically used for shielding purposes may be acceptable for disposal, but shall be evaluated by the Barnwell Licensing Department. Information requested on Appendix F shall be provided for evaluation.

13.20 Mixed Waste

13.20.1 No mixtures of radioactive waste and hazardous waste as defined by Title 40 Code of Federal Regulations (CFR) Part 261 and S.C. Management Regulation 61-79.261 will be accepted.

13.20.2 A mixture of radioactive waste and waste which was classified as hazardous solely because it exhibited one or more of the hazardous characteristics defined in 40 CFR 261 Subpart C but has been treated in a manner such that it no longer exhibits any of the characteristics, will be reviewed for acceptance on a case-by-case basis. As required by 40 CFR 261.24, the Toxicity Characteristic Leaching Procedure shall be used.

13.20.3 A description of the treatment process and results of the analytical tests of the final waste shall be submitted to CNSI for evaluation prior to shipment.

13.21 Polychlorinated Biphenyl Waste (PCB)

13.21.1 No PCB's or PCB contaminated items will be accepted for disposal.

13.21.2 The Barnwell Licensing Department shall have documentation or analytical results from the shipper

substantiating the absence of PCB's for PCB suspect waste. This information shall be provided prior to shipment.

13.22 Asbestos

13.22.1 Packages containing radioactively contaminated asbestos waste only shall be identified as asbestos under the waste description of the RSM and continuation sheet.

13.22.2 Packages containing asbestos waste (0.1 % or greater by weight) shall be identified on the manifest continuation sheet as specified in Section 6.4.

13.22.3 OSHA Asbestos standard 29 CFR 1910.1001 requires affixment of warning labels on waste packages containing asbestos.

13.23 Radium Wastes

Waste containing Radium are prohibited except as specified below:

13.23.1 Radium contained in solid homogeneous waste forms in which the Radium activity is incidental to the total activity and the concentration of Radium has not been technologically enhanced. The classification of this waste shall be in accordance with Condition 31. of License 097.

13.23.2 Radium contained in self-luminous dials, hands of dials, timepieces, compasses, and electron tubes provided that the entire device is received and disposed.

13.23.3 Radium contained in biological research waste. The classification of this waste shall be in accordance with Condition 31. of License 097.

13.23.4 Radium sources which have been specifically approved by the Department. Sealed source approvals and processing shall be accomplished in accordance with Step 13.4.

14.0 SHIPMENTS NOT AUTHORIZED BY CNSI RADIOACTIVE MATERIAL LICENSES

14.1 If a proposed shipment does not conform to the requirements of References 2.1 or 2.2, CNSI Marketing shall be contacted by the customer and provided with detailed information on the packaging and contents of the shipment.

14.2 CNSI Marketing should be contacted for the procedures for obtaining a variance. Shipments requiring variances shall be subject to a special surcharge.

15.0 SHIPMENTS VIOLATING REGULATIONS OR CRITERIA

15.1 The customer shall be notified by telephone of any nonconformance with References 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 or this Site Criteria.

15.2 DHEC officials shall be notified of any waste shipments where a violation of applicable regulations or license conditions has been found.

15.3 The customer shall have twenty-four hours to send a representative to inspect the shipment provided the violation is discovered during receipt inspection or early stages of offloading.

15.4 Twenty-four hours after customer notification, if customer inspection is waived, or if efforts to contact the customer are unsuccessful, the shipment may be offloaded with DHEC approval.

15.5 If deemed necessary and with the approval of DHEC, the shipment may be returned to the customer.

15.6 The customer shall be billed for any special services, detention and additional handling charges on shipments received with violations/ discrepancies.

APPENDIX A

TABLE OF ABBREVIATIONS

(1 PAGE)

ABBREVIATIONS

C of C	Certificate of Compliance
CFR	Code of Federal Regulations
CNSI	Chem-Nuclear Systems, Inc.
DHEC	South Carolina Department of Health and Environmental Control
DOE	Department of Energy (U.S.)
DOT	Department of Transportation (U.S.)
DPM	Disintegrations Per Minute
HIC	High Integrity Container
LPRM	Low Power Range Monitor
LSA	Low Specific Activity
NRC	Nuclear Regulatory Commission (U.S.)
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PNP	Prior Notification Plan
RADWASTE	Low-Level Radioactive Waste
RSM	Radioactive Shipment Manifest
RWTP	Radioactive Waste Transport Permit
SITE	Barnwell Waste Management Facility
SITE CRITERIA	Barnwell Waste Management Facility Site Disposal Criteria
SM	Source Material
SNM	Special Nuclear Material
TCLP	Toxicity Characteristic Leaching Procedure
WSSP	Waste Shipment Scheduling Plan

APPENDIX B

CNSI TELEPHONE NUMBERS

ACCEPTANCE AT THE BARNWELL SITE

(1 PAGE)

CNSI TELEPHONE NUMBERS

ɜarnwell Office	(803) 259-1781	Barnwell, SC
Barnwell Fax (803) 259-7230	Barnwell, SC (803) 259-1477	
Waste Shipment Scheduling Office	(803) 259-3577	Barnwell, SC
Notification Plan Office	(803) 259-3578	Barnwell, SC
Midwestern Region	(815) 467-3000	Channahon, IL
Corporate Office/Southeast Region	(803) 256-0450	Columbia, SC
Northeast Region	(203) 677-0457	Avon, CT
Western Region	(803) 256-0450	Columbia, SC

APPENDIX C

DIRECTIONS FOR COMPLETING THE BROKER/PROCESSOR FORM

(3 PAGES)

DIRECTIONS FOR COMPLETING THE BROKER/PROCESSOR FORM

Shipper - Person or Company making the shipment.

2. Shipment I.D. Number - Enter acquired number from the Chem-Nuclear WSSP/PNP Department - (803)259-3577.

3. Waste Generator - List the waste generator, along with city and state location. A generator having more than one facility must identify the facility that generated the waste.

Permit Number - Enter the S.C. Radioactive Waste Transport Permit Number.

Waste Description - Provide general description of each waste form (i.e.: dewatered resins, solidified sludge in cement, lab trash consisting of paper and plastic, etc.).

5. Waste Volume - Enter the cubic footage for each waste form.

7 Nuclide - List the individual radionuclides for each waste form.

8 Nuclide Activity - List the radionuclide activities in millicuries for each waste form.

9 Total Activity - List the total activity in millicuries for each waste form.

10 Waste Class - List the appropriate waste class (A-U, A-S, B or C) for each waste form.

11 Total Weight - Enter total weight for each generator's waste.

12 Special Nuclear Material - List the total SNM grams for U-233, U-235, and plutonium for each generator.

13 Source Pounds - List the source pounds for each generator.

14. Container Type - List the type of disposal container, (i.e.: steel box, wooden box, HIC, etc.).

NFORMATION ON THIS FORM MUST CORRESPOND WITH ALL DOCUMENTS PROVIDED WITH THE SHIPPING PAPERS.

WASTE FORMS

ɔsin

Dry Active Waste

Filter Media (used in liquids other than resin or cartridges)

Cartridge/Mech. Filters (aqueous filters)

Solidified Liquid

Equipment/Components

Bulk

Biological

Ash

Air Filtration Filters

Asbestos

ɔmbustibles

Non-Combustibles

NOTE: ADDITIONAL WASTE FORMS MAY BE REQUIRED TO BE LISTED SEPARATELY ON THE RSM AS THEY ARE PRODUCED WITHIN THE NUCLEAR INDUSTRY. PLEASE CONTACT THE BARNWELL LICENSING DEPARTMENT IF YOU HAVE A QUESTION CONCERNING A WASTE FORM.

GENERATOR VOLUME AND ACTIVITY FORM
(BROKER/PROCESSOR FORM)

SHIPPER CHEM-NUCLEAR SYSTEMS, INC. - CHANNAHON (1)

SHIPMENT I.D. NO. 1190-190 (2)

WASTE GENERATOR CITY AND STATE	PERMIT NUMBER	WASTE DESCRIPTION & PERCENT	WASTE VOLUME (ft^3)	NUCLIDE	NUCLIDE ACTIVITY (mCi)	TOTAL ACTIVITY (mCi)	WASTE CLASS	TOTAL WEIGHT (gms)	SNM U-233, U-235, Pu (gms)	SOURCE POUNDS (lbs)	CONTAINER TYPE	WCC CODE (CNSI USE ONLY)
(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
South Carolina Power Company P.O. Box 911, Columbia, SC 29817	0123-39-90-X	Dry Active Waste (Paper)	3	Co-60 Cs-137 Sr-90 Mn-54 Th-232 U-235	25 25 25 23 1 1	100	AU	100	2	1.5	Steel Drum	
		Dewatered filters solidified in cement	2	Co-60 Cs-134 Cs-157 Fe-55	75 70 30 50	225	AS	200	N/A	N/A	Steel Drum	
	TOTAL		5			325		300	2	1.5		

APPENDIX D

DOCUMENTATION REQUIRED FOR CLASS C WASTE SHIPMENT

(4 PAGES)

DOCUMENTATION REQUIRED FOR CLASS C WASTE SHIPMENT ACCEPTANCE AT THE BARNWELL SITE

These instructions outline documentation required for Class C waste shipment acceptance. This documentation is required in addition to other applicable requirements of S.C. License 097, Barnwell Site Criteria and State and Federal regulations. Waste classification must be performed in accordance with 10 CFR 61.55, "Waste Classification" and License 097, Amendment 45, Condition 31. Detailed explanation is provided in the NRC Low Level Waste Licensing Branch Technical Position on Radioactive Waste Classification.

This additional information will be used to evaluate the shipment for acceptance. In order to have consistency, the information provided on the attached form shall be completed and sent with each shipment.

1. Waste Description

   The item, component or medium in which the radioactivity is present and the physical nature of the waste should be described. Example: irradiated non-fuel bearing reactor components, control rod blades, 304 stainless steel.

2. **Container Volume**

   The disposal volume (ft^3) is used to determine allocations and disposal fees. The volume of waste materials only shall be used in determining radionuclide concentrations.

3. **Container Type**

   The disposal container should be clearly identified in terms of its size, composition and construction. The approximate arrangement of the waste inside the container shall also be specified.

4. **Radiation Levels**

The maximum dose rate of the disposal container in air at one (1) foot shall be clearly stated.

5. **Total Curie Content**

Self explanatory.

6. **Radionuclide Concentrations**

A detailed list of the concentrations of contained radionuclides in microcuries per cubic centimeter and concentrations of each transuranic radionuclide in nanocuries per gram shall be provided. The total activity of each radionuclide in the waste material shall also be given.

7. **Waste Classification Method**

The methods used to calculate radionuclide concentrations in Class C waste shall be specified. The NRC's Branch Technical Position discusses acceptable methods that can be used to classify wastes. Briefly describe the methods used to determine radionuclide concentrations.

CLASS "C" WASTE CLASSIFICATION RECORD

Generator Name	Shipment Number	Volume Allocation Number

1. Waste Description:

2. Volumes: (a) Container Volume (Ft^3) (b) Waste Volume (cm^3)

3. Container Type:

4. Radiation Levels: Maximum Dose Rate of Disposal Container at One (1) Foot:

5. Total curie content:

6. Radionuclide concentrations:

Radionuclides	Each Radionuclide Concentration (Microcuries/cc)	Total Activity of Each Radionuclide	Each Transuranic Concentration (Nanocuries/gm)

Total Concentration of all Transuranics _____

CLASS "C" WASTE CLASSIFICATION RECORD

Generator Name	Shipment Number	Volume Allocation Number

7. Waste Classification Methods:

   (a) Describe method:

SIGNATURE:_____

DATE:_____

TITLE:_____

COMPANY:_____

APPENDIX E

DISPLACEMENT VOLUME FOR STEEL DRUMS

AND STANDARD B-25 BOXES

(1 PAGE)

DRUM VOLUMES

5-GALLON DRUM	.68 CUBIC FEET
30-GALLON DRUM	4.10 CUBIC FEET
52-GALLON DRUM	7.10 CUBIC FEET
55-GALLON DRUM	7.50 CUBIC FEET
79-GALLON DRUM	10.80 CUBIC FEET
83-GALLON DRUM	11.30 CUBIC FEET
85-GALLON DRUM	11.60 CUBIC FEET
89-GALLON DRUM	12.10 CUBIC FEET
96-GALLON DRUM	13.10 CUBIC FEET
110-GALLON DRUM	15.00 CUBIC FEET

NOTE: TO OBTAIN A VOLUME FOR A DRUM OTHER THAN LISTED ABOVE, CONTACT THE BARNWELL LICENSING DEPARTMENT.

BOX VOLUMES

*STANDARD B-25 BOX	95 CUBIC FEET

* Volumes for other B-25 type boxes (i.e.: type A, drum overpacks, etc.) are to be obtained through the use of Section 7.0, Volume Measurement Criteria.

APPENDIX F

LEAD SHIELDING REQUEST

(1 PAGE)

LEAD SHIELDING REQUEST

Lead used for radiation shielding purposes may be acceptable for disposal at the Barnwell Site. Requests for acceptance of non-radioactively contaminated lead specifically used for shielding purposes must be evaluated by Chem-Nuclear Systems, Inc., to ensure regulatory compliance. In order for Chem-Nuclear to evaluate your request, please provide the following information prior to making waste shipments containing lead shielding.

1. type of lead used (sheet, shot, etc.)

2. amount of lead used (pounds/thickness): please provide a detailed sketch of the waste packaging specifically showing the location and thickness of the lead.

3. container type and size (can be shown in sketch)

4. location of lead in container, i.e.: top, bottom, sides (can be shown in sketch)

5. description of waste requiring shielding (waste form, total activity, isotopic distribution and total volume)

6. waste classification (A, B or C)

7. approximate radiation dose rate prior to shielding

8. approximate radiation dose after shielding

APPENDIX G

RADIOACTIVE SHIPMENT MANIFEST

AND INSTRUCTIONS

(3 PAGES)

BARNWELL WASTE MANAGEMENT FACILITY

Operated by CHEM-NUCLEAR SYSTEM, INC.
PO Box 726, Barnwell, South Carolina 29812
(803) 259-1781

RADIOACTIVE SHIPMENT MANIFEST FORM

(3A) RADIOACTIVE WASTE TRANSPORTATON PERMIT NO. _____

(1) GENERATOR NAME _____
FACILITY _____
ADDRESS _____
CITY _____ STATE _____ ZIP CODE _____
CONTACT _____ PHONE ( ) _____
EMERGENCY RESPONSE CONTACT: _____
_____ PHONE ( ) _____
(2) BILL TO: _____
CONTRACT/P.O. NO. _____

(4) USE THIS NUMBER ON ALL CONTINUATION PAGES _____ SHIPMENT I.D. NUMBER _____ PAGE _____ OF _____
(3B) NUMBER OF GENERATORS _____

(5) CARRIER _____ ADDRESS _____
TELEPHONE _____ SHIPPING DATE _____
SHIPMENT TYPE _____ SHIPMENT SURFACE EXPOSURE _____ mR/hr
CASK IDENTIFICATION NO. _____ USA _____
SHIPMENT NO. _____ LINER TYPE _____
LINER SERIAL NO. _____
DRIVER SIGNATURE _____ DATE _____

(6) TOTAL FOR EACH CLASS		PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172 101)	I.D. NUMBER	Reportable Quantity or Fissile Excepted
NO. OF PACKAGES	WEIGHT (POUNDS)			
		Radioactive Material, excepted package - empty packaging; 7	UN2910	
		Radioactive Material, fissile, n.o.s.; 7	UN2918	
		Radioactive Material, LSA, n.o.s.; 7	UN2912	
		Radioactive Material, n.o.s.; 7	UN2982	
		Radioactive Material, excepted package - limited quantity of material, 7	UN2910	
		Radioactive Material, special form, n.o.s.; 7	UN2974	
		Radioactive Material, surface contaminated object; 7	UN2913	
		Radioactive Material, excepted package - instruments or articles; 7	UN2910	
		Other (Specify)		

(12) WASTE DESCRIPTION _____ (13) PHYSICAL FORM _____

(7) SHIPMENT TOTALS

Disposal Volume (ft.³)	Total No. of Packages	ACTIVITY (10CFR20.311) Millicuries					Source (Pounds)
		All Isotopes	Tritium	C-14	Tc-99	I-129	

(8) TOTAL SNM

Isotope	Grams	No. Packages
U-233		
U-235		
PU		
TOTAL		

(9) MINIMUM WASTE PACKAGE % FILL _____
(10) SOLIDIFICATION AGENT _____
(11) NUMBER AND TYPE OF CONTAINERS _____
(14) CHEMICAL FORM _____
(15) NAME AND % OF CHELATING AGENT(S) _____
(16) WASTE FORM CLASS ☐ AU ☐ AS ☐ B ☐ C

(17) ( ) Yes ( ) No THIS VEHICLE IS CONSIGNED EXCLUSIVE USE. LOADING AND UNLOADING MUST BE ACCOMPLISHED BY CONSIGNOR OR CONSIGNEE OR HIS DESIGNATED AGENT.

(18) IMPORTANT: *This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature _____
Company _____ Date _____

(19) *Certification is hereby made to the South Carolina Department of Health and Environmental Control that this shipment of low-level radioactive waste has been prepared in accordance with a radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and has been inspected in accordance with the requirements of South Carolina Radioactive Material License No. 097 as amended, and the Nuclear Regulatory Commission's License No. 12-13536-01 as amended, and the effective Barnwell Site Disposal Criteria within 48 hours prior to shipment, and further certification is made that the inspection revealed no items of non-compliance with all applicable laws, rules and regulations.

Date _____ Signature _____
Title and Organization _____
Telephone No. ( ) _____

DISPOSAL SITE COPY
Form No. CNS-201
(3/96)
SEE INSTRUCTIONS ON REVERSE SIDE FOR FILLING OUT THIS FORM

CNSI USE ONLY

☐ This material meets all license requirements.
☐ This material was disposed of in accordance with license.
☐ Discrepancy. _____

Date _____
Authorized Signature _____ Title _____

Crane ☐ Forklift ☐
Shielded ☐ Personnel Barrier ☐

Overpack S/N _____
Overpack Lid S/N _____
Other _____

Arrival Date _____ Arrival Survey No. _____
Date/Time Buried _____ H.P Initial _____
Trench No. _____ Location Code _____
Waste Class Code _____
Trench No. _____ Location Code _____
Waste Class Code _____
Personnel Exposure _____

CHEM-NUCLEAR SYSTEM, INC

INSTRUCTIONS FOR COMPLETING RADIOACTIVE SHIPMENT MANIFEST FORM

NOTE: SHIPMENT MAY BE REFUSED IF CONTENTS, SUPPORTING DOCUMENTATION AND PACKAGING REQUIREMENTS ARE NOT IN COMPLIANCE WITH CHEM-NUCLEAR SYSTEMS, INC'S STATE AND FEDERAL LICENSES, THE BARNWELL SITE CRITERIA AND APPLICABLE DOT AND NRC SHIPPING REGULATIONS.

GENERATOR OR SHIPPER MUST PROVIDE (PRINTED OR TYPED) INFORMATION IN ALL NUMBERED AREAS ON THE RSM FORM. USE OF N/A FOR "NOT APPLICABLE" IS AUTHORIZED.

NOTE: DESCRIPTION OF ITEMS

1. Indicate generator name (consignor), complete address, contact person and telephone number of person responsible for making shipment. Enter Emergency Response contact and telephone number.

2. Indicated proper billing name and address if different than Item 1.

3 A. Enter the RADIOACTIVE WASTE TRANSPORT NO. obtained from the South Carolina Department of Health and Environmental Control.

3 B. Enter the total number of individual generators with waste on this shipment.

4. Each shipment is assigned a Shipment I.D. Number by the Barnwell office. Write the number in this space and use this same number on all continuation pages used for each shipment. Number all pages in chronological order.

5. List the carrier, address, telephone number, shipping date, shipment type (van, cask, etc.), shipment surface exposure (highest radiation exposure on the exterior of the van, cask, etc.), cask identification No. (example USA/6501/B), shipment number, liner type, liner serial no., driver signature and date.

6. Indicate the total number of containers and the total weight, in pounds, of each hazard class. If shipment contains a Reportable Quantity, the letters RQ must be indicated in the box(s) beside the Proper Shipping Name. If the material is excepted from fissile requirements and fissile radionuclides are present, enter FISSILE EXCEPTED in this box.

7. Enter disposal package volume in cubic feet and total number of disposal packages. Record the cumulative total of all hazard classes in the blocks. If the stated radioisotopes listed in the four columns are NOT present, record in the blocks as "not present" (N.P.). If the radioisotopes DO exist, but are in quantities less than the lower limits of detection, (LLD), the quantities of the nuclides must be recorded as being less than the minimum detectable. The minimum detectable amount must be included in parenthesis. U-238, Th-232 or any other material which is source material, must be recorded in source pounds.

8. List the number of packages and weight, in grams, of special nuclear material.

9. Enter the minimum percent amount of waste in the disposal package. If shipment contains more than one package, enter the lesser percentage.

10. Enter the solidification agent for process (cement, bitumen, etc.).

11. List the number and type of containers (i.e.: 5 metal boxes and 65 steel drums).

12. SEE ITEM 26.

13. SEE ITEM 24.

14. SEE ITEM 25.

15. SEE ITEM 25 NOTE.

16. SEE ITEM 27.

17. Indicate if shipment is transported as exclusive use or not applicable. If "yes" is checked, instructions for maintenance of exclusive use vehicles must be provided by the shipper to the carrier.

18. A company representative of the generator must sign the DOT certification. All signatures must be legible.

19. A company representative of the generator must sign the S.C. DHEC certification. Title, organization and phone number must be indicated. The date must be within 48 hours of the shipping date as specified in Block 5. Under no circumstances should the shipping date be prior to the certification date of Blocks 18 and 19. All signatures must be legible.

20. List each container separately. Item number(s) on the disposal container(s) must correspond with item number(s) listed on the RSM form.

21. List the prominent radionuclides in each container. Use of MFP or MCP are not authorized. Use as many lines as necessary to describe the contents of the container. NOTE: If more than one container in the shipment contains the same activity distribution of each radionuclide, a listing of radionuclides is required for the first container only. Subsequent containers in this series will require a lone line entry with appropriate information on each. Use of the words, "See attached. . . . ", is not an appropriate entry.

22. Record the percent abundance of each radionuclide or the activity of each radionuclide in mCi, in each container (See #21 above).

23. Record the cumulative total of all isotopes in each container, in mCi.

24. Record the physical form (solid or gas) of the waste material. "Liquid" is not authorized.

25. Record the chemical form of the waste material. NOTE: If material contains chelating agents in quantities greater than 0.1%, the names and weight percentage must be listed.

26. Describe briefly what the waste is. If the material is solidified, indicate what solidification media is used. Example: Dewatered bead resin, solidified liquid in Portland cement;, solidified powdered resin in bitumen, fibers encapsulated in Portland cement, building rubble, irradiated non-fuel bearing reactor components (specify component types), contaminated trash (specify paper, plastic, scrap metal, wood, etc.).

27. List the classification of the waste package, either AU, AS, B or C per 10 CFR 61.55 and 61.56.

28. List weight, in grams, of Special Nuclear Material.

29. Weight, in pounds, of the isotopes U-238, Th-232, or any other material which is source material.

30. Weight, in pounds, of each disposable container including its contents.

31. Record the volume, in ft^3, of the disposal container. Drum pallets or spacers inside casks are not classified as radioactive waste.

32. List each type of disposal container used (Example, wooden box, steel box, HIC, drum, etc.).

33. Record the highest measured radiation level for each disposal container surface. Package surface may be the same as disposal container if a cask is not used. "Transport Index (TI) is applicable only to the actual N.R.C. or D.O.T. shipping package (ie: cask, drum, box, etc.) and not to liners and drums shipped inside of cask or other packages.

34. Record the results of contamination surveys performed on the disposal containers. Do not use "BKG" for background levels unless the background level is indicated in this column.

35. Record the appropriate LSA or SCO Group.

36. Write in what kind of D.O.T. labels or markings are used on each container.

BARNWELL WASTE MANAGEMENT FACILITY
Operated by: CHEM-NUCLEAR SYSTEMS, INC.

GENERATOR NAME _____

CONTINUATION SHEET

USE THIS NUMBER ON ALL CONTINUATION PAGES

SHIPMENT ID NUMBER _____

PAGE____ OF____

(20) ITEM NO	(21) RADIO-NUCLIDE EACH CONTAINER	(22) PERCENT OF ACTIVITY ON mCi OF EACH NUCLIDE	(23) ACTIVITY EACH CONTAINER (mCi)	(24) PHYSICAL FORM	(25) CHEMICAL FORM AND NAME & % OF CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SPECIAL NUCLEAR MATERIAL (grams)	(29) SOURCE MATERIAL (pounds)	DISPOSAL CONTAINER							(35) LSA OR SCO GROUP	(36) LABELS MARKINGS USED
										(30) CONTAINER WEIGHT (pounds)	(31) CONTAINER VOLUME (Cu Ft)	(32) CONTAINER TYPE	(33) RADIATION LEVELS CONTAINER SURFACE mR/hr	(33) RADIATION LEVELS @ 1 METER mR/hr	(34) CONTAMINATION CONTAINER SURFACE (DPM / 100cm²) Alpha	(34) CONTAMINATION CONTAINER SURFACE (DPM / 100cm²) Beta Gamma		
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Form No. CNS-201
(3/96)

DISPOSAL SITE COPY

S20-AD-010, APPENDIX G
PAGE 3, REV. 3/18/96

CHEM-NUCLEAR SYSTEMS, INC.

140 Stoneridge Drive • Columbia, South Carolina 29210 • (803) 256-0450

March 21, 1996

DOT's Exemption (E11575) For The Use of Chem-Nuclear's Radioactive Waste Shipping Manifest (RSM) Form (CNS201)

Dear Customer:

As indicated in previous correspondence, the Department of Transportation (DOT) has taken the position that the format of the Barnwell RSM does not fully comply with the DOT's shipping paper requirements. DOT's specific issue is with individual package information on the continuation sheets being separate from the basic description annotated on the cover sheet. In response to the DOT's position, Chem-Nuclear requested and has been granted exemption from the applicable DOT regulations.

Chem-Nuclear always has and always will strive for 100% regulatory compliance in all aspects of our operations. This DOT exemption is an important step in assisting our customers toward full compliance with the DOT's regulations.

A copy of the exemption is attached for your review. The DOT exemption allows the use of Chem-Nuclear RSM's in its current format. The exemption is valid immediately and extends through March 1, 1998. On March 1, 1998, the Nuclear Regulatory Commission's Uniform Low-Level Radioactive Waste Manifest will be required, although Chem-Nuclear intends to implement the use of the NRC Uniform LLW Manifest at the Barnwell Radioactive Waste Management Facility much sooner than required.

The DOT exemption requires the following:

1) Read it thoroughly to ensure a full understanding and compliance;
2) The DOT exemption number (DOT E-11575) must be annotated on each page of the manifest;
3) The DOT exemption is NOT required to be marked on each package;
4) Users of the exemption must have a copy of the Chem-Nuclear manifest on file. Any other manifest formats must be authorized prior to use by the processing or disposal facility;
5) The exemption is applicable for all Chem-Nuclear manifests from any of our facilities; and
6) While the exemption is structured to support the use of the exemption for other company's facilities and manifests, other organizations must first submit application to the DOT for party status, as indicated in the exemption.

Any questions or comments should be directed to Mr. Scotty W. Jones, CSP, Assistant Licensing Manager at (803) 758-1870 or after April 1, 1996, at (803) 259-1781.

Very respectfully,

Scotty W. Jones

Scotty W. Jones, CSP
Assistant Licensing Manager

SWJ/tjk
(D10796)

U.S. Department
of Transportation

**Research and
Special Programs
Administration**

00 Seventh Street, S.W.
Washington, D.C. 20590

FEB 25 1996

DOT-E 11575

EXPIRATION DATE: December 31, 1997

1. GRANTEES:

   a. Chem-Nuclear Systems, Inc., Columbia, South Carolina;

   b. Persons offering for transportation shipments of Class 7 (radioactive) materials for processing or disposal at Chem-Nuclear's facilities located in Barnwell, SC or in Klingstón, TN; and

   c. Persons offering for transportation shipments of Class 7 (radioactive) material to **processing or disposal facilities** who have been granted party status in accordance with paragraph 8(c).

2. PURPOSE AND LIMITATION: This exemption provides relief from certain shipping paper requirements for shipments of Low Level Radioactive Waste (LLRW) being transported in commerce. This exemption provides no relief from any regulation other than as specifically stated herein.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR Part 107, Subpart B, Appendix B, Paragraph (1); and 172.201(a)(4).

5. BASIS: This exemption is based on the application of Chem-Nuclear Systems, Inc. dated October 26, 1995 with supplemental information dated January 3, 1996, submitted in accordance with 49 CFR 107.103 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous materials description -- proper shipping name	Hazard Class/ Division	Identi-fication Number	Packing Group
Radioactive material, low specific activity (LSA), n.o.s.	7	UN2912	N/A
Radioactive material, surface contaminated objects (SCO), n.o.s.	7	UN2913	N/A

Hazardous materials description -- proper shipping name	Hazard Class/ Division	Identi-fication Number	Packing Group
Radioactive material, fissile, n.o.s.	7	UN2918	N/A
Radioactive material, n.o.s.	7	UN2982	N/A
Radioactive material, special form, n.o.s.	7	UN2974	N/A
Radioactive material, excepted package-empty packaging	7	UN2910	N/A
Radioactive material, excepted package-limited quantity of material	7	UN2910	N/A
Radioactive material, excepted package-articles manufactured from natural or depleted uranium or natural thorium.	7	UN2910	N/A
Radioactive material, excepted package-instruments or articles	7	UN2910	N/A
Thorium metal, pyrophoric	7	UN2975	N/A
Thorium nitrate, solid	7	UN2976	N/A
Uranyl nitrate, solid	7	UN2981	N/A
Uranium metal, pyrophoric	7	UN2979	N/A

7. PACKAGING AND SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings must satisfy the applicable requirements contained in 49 CFR Parts 171 - 180.

b. SHIPPING DOCUMENTS - The requirement in 172.201(a)(4) to have the additional detailed descriptive information of 172.203(d) following each basic description on the shipping document (manifest) is waived. The additional descriptive information required by 172.203(d) must be shown on pages attached to the first page of the manifest which lists each basic description (shipping name, hazard class, UN ID number) for all packages in the shipment.

8. SPECIAL PROVISIONS:

a. Chem-Nuclear Systems, Inc. shall provide a copy of this exemption to all their customers who offer LLRW to Chem-Nuclear's facilities located in Barnwell, SC and Klingston, TN for processing or disposal. Chem-Nuclear Systems, Inc.

shall maintain a list of those persons to whom the exemption has been provided, and that list shall be provided to DOT authorized officials upon request.

b. Prior to a person offering shipments to Chem-Nuclear facilities identified in paragraph 8(a) with shipping documents authorized under this exemption, a person must have on file a copy of the Chem-Nuclear radioactive waste manifest. If persons shipping to Chem-Nuclear use a manifest other than the Chem-Nuclear manifest, they must provide a copy to Chem-Nuclear and receive from Chem-Nuclear a notice that the alternative manifest is acceptable.

c. Each processing or disposal facility wishing to use this exemption, other than Chem-Nuclear Systems, Inc., shall submit an application to the Associate Administrator for Hazardous Materials Safety requesting party status in accordance with 49 CFR 107.111. (It should be noted that this process takes approximately 45 - 60 days to complete.) If granted party status, they shall review manifests and maintain records as does Chem-Nuclear in accordance with paragraph 8(a) and (b).

d. This exemption will not be extended beyond March 1, 1998 since the Nuclear Regulatory Commission's Uniform Low-Level Radioactive Waste Manifest, which was published as a final rule in the Federal Register on March 27, 1995 and required on March 1, 1998, conforms to the requirements of 49 CFR Part 172, Subpart C.

e. Shippers using this exemption must comply with all provisions of this exemption, and all other applicable requirements contained in 49 CFR Parts 171-180.

f. Each person offering shipments under this exemption must maintain a copy of this exemption at each facility from which such offering occurs and it must be made available to authorized officials upon request.

g. MARKING -

(i) Each hazardous waste manifest prepared under the provisions of this exemption shall be clearly marked on each page DOT-E 11575.

(ii) The requirement of 49 CFR Part 107, Subpart B, Appendix B, Paragraph (1) to mark the exemption number on the outside of each package offered for transport under an exemption is waived.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, and cargo only aircraft.

10. MODAL REQUIREMENTS:

a. No modal specific requirements are required by this exemption.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. Section 5101 et seq:

- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- o Registration required by 49 CFR 107.601 et seq., when applicable.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (49 CFR 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incidents involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.:

FEB 25 1996

Alan I. Roberts (DATE)
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Dist: FHWA, FRA, USCG, and FAA
PO:JGA

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

August 11, 1995

Mr. William B. House
Corporate Director of Licensing
Chem-Nuclear Systems, Inc.
P.O. Box 726
Columbia, South Carolina 29210

Dear Mr. House:

In accordance with your renewal application dated November 20, 1992, Chapter 48, Title 48 of the 1976 Code as amended and subsequent discussions between the Department and Chem-Nuclear Systems, Inc., the Department has amended your South Carolina Radioactive Material License No. 097, by the enclosed amendment 46, issued for operation of the low-level radioactive waste disposal facility in Barnwell, South Carolina. In addition to renewal of the license and subsequently changing the expiration date to July 31, 2000, other changes have been made to conditions of the license. These include changes to include current regulatory requirements for use of disposal vaults for all classes of waste, incorporation of the additional requirements and allowances in our letter dated July 26, 1993, and other changes requested in the renewal application and as discussed with you.

The Department will allow CNSI to operate using the current disposal methods until December 31, 1995. After this date all classes of waste, unless specifically exempted by the Department, must be disposed in vaults which have been constructed in accordance with plans and procedures that have received approval from the Department. All other changes in the conditions of the license must be incorporated upon receipt of the license. All changes have been indicated by underlining the condition number.

If you have questions concerning this license, please do not hesitate to contact our office.

Very truly yours,

Virgil R. Autry, Director
Division of Radioactive Waste Management
Bureau of Solid & Hazardous Waste Management

097LTR/sdl

Enclosure
cc: U.S. NRC

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
RADIOACTIVE MATERIAL LICENSE

Pursuant to the Atomic Energy and Radiation Control Act, Section 13-7-40 et. seq. of S.C. Code of Laws of 1976 as amended and Supplements thereto, and the South Carolina Department of Health and Environmental Control Regulation 61-63 radioactive Material (Title A), and in reliance on statements and representations heretofore made by the applicant, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. The license is subject to all applicable rules of the South Carolina Department of Health and Environmental Control now or hereafter in effect and to any conditions specified below.

Amendment No. 46 amends

LICENSEE	3. License Number
1. Name Chem-Nuclear Systems, Inc. Barnwell Waste Management Facility A Subsidiary of Waste Management, Inc.	097 in its entirety
2. Address P.O. Box 726 Barnwell, S.C. 29812	4. Expiration Date July 31, 2000

5. Radioactive Material (Element and Mass Number)	6. Chemical and/or Physical Form	7. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
A. Any Radioactive material excluding source material and special nuclear material.	A. Dry packaged radioactive waste except as authorized in this license.	A. 50,000 curies
B. Source material	B. Dry packaged radioactive waste except as authorized in this license.	B. 60,000 pounds

8. Authorized Use:

A. and B.

Radioactive material as low-level radioactive waste may be received, stored, and disposed of by shallow land burial. The licensee shall not receive an annual volume of more than one million, two hundred thousand (1.2 million) cubic feet of waste per calendar year; however, the licensee is authorized to increase the volume in ten (10) per centrum increments; provided that the Department is notified in writing no later than thirty (30) days in advance of such increases.

Unless otherwise authorized by the Department, only radioactive waste consigned for burial shall be received at the location specified in Condition No. 9 of this license. The maximum radioactivity and/or quantity of radioactive material indicated in Item 7. A and B applies to the above ground activities.

General Conditions

9. Unless otherwise specified, the authorized place of use is a site located approximately five miles northwest of Barnwell, South Carolina, in the Seven Pines School District, Red Oak Township, Barnwell County, South Carolina within the boundary if the land area described in Lease agreement dated April 6, 1976, as amended.

10. The licensee shall comply with the provisions of Department Regulation 61-63, Radioactive Material , (Title A), Part I - General Provisions; Part II - Licensing of Radioactive Materials; Part VI - Notices, Instructions, and

Reports to Workers; Inspections, and Part VIII - Licensing Requirements for Land Disposal of Radioactive Waste; Department Regulation 61-83, Transportation of Radioactive Waste Into or Within South Carolina.

11. Unless otherwise specified in this license, the licensee shall make no changes in the internal safety audits, Safety Review Board, ALARA Review Committee, Site Criteria, or Procedures governing these specific activities without approval from the Department.

12. Operations authorized by this license shall be conducted in accordance with Chem-Nuclear Systems, Inc. procedures and subsequent revisions and additions approved by the Department. However, the licensee may upon notification to the Department but without Department approval, make minor changes to these procedures provided that:

A. The change does not affect requirements of any other license condition in this license;

B. The change does not increase the potential for personnel exposure;

C. The change does not diminish operational safety;

D. The change does not increase the potential for release of radioactive material to unrestricted areas; and

E. The change does not reduce the licensee's record keeping and reporting system.

The licensee shall maintain records of these changes including evaluations which provide the basis for the change.

13. The licensee shall ensure that all site personnel have satisfactorily completed the training program requirements as specified in the Chem-Nuclear Systems, Inc. Barnwell Site Training Program. Changes and additions to the program shall be submitted to the Department for review. Time intervals for personnel indoctrination, training, examinations, certification, retraining specified in Procedure S20-AD-004, "Barnwell Radioactive Waste Burial Site Personnel Training" shall not be changed without Department approval.

14. Operations shall be conducted by or under the supervision of: Mark S. Whittaker, (RPO), John S. Zawacki, Joseph J. Still, George Hurst, Michael T. Ryan, William B. House or other individuals designated by the licensee's Radiation Protection Officer upon successful completion of the licensee's training program and approval by the licensee's Safety Review Board.

15. The licensee shall to the extent necessary, continue the employment of all personnel involved in the operation of the Barnwell Waste Management Facility in accordance with all requirements in the license and applicable regulations and, in the event replacement of employees becomes necessary, only individuals of comparable qualifications and experience will be hired.

16. A documented weekly inspection of site operations and the restricted area of the site for compliance with applicable conditions of this license shall be conducted by a named designee in Condition 14.

17. The transportation of radioactive materials and radioactive waste within the State of South Carolina shall be in accordance with applicable regulations of the U.S. Department of Transportation, the U.S. Nuclear

Regulatory Commission, Section RHA 2.22, Department Regulation 61-63, Radioactive Material (Title A), and Department Regulation 61-83, "Transportation of Radioactive Waste Into or Within South Carolina".

18. The licensee shall maintain all records and shipment manifest pertinent to the transportation, receipt, and disposal of radioactive material at the location specified in Condition 9 of this license until authorization is given by the Department for transfer or disposal of such records.

19. The licensee shall maintain a record for each shipment of waste disposed of at the site. As a minimum, the record shall include:

A. the date of disposal of the waste;

B. the location of waste in the disposal site;

C. the condition of the waste packages received;

D. any discrepancy between the waste listed on the shipment manifest or shipping papers and the waste received in the shipment;

E. a description of any evidence of leaking or damaged packages or radiation or contamination in excess of applicable regulatory limits; and

F. a description of any repackaging operations of any of the waste packages in the shipment.

20. A monthly site receipt and burial activities report shall be submitted no later than the 10th day following the month to the Director, Division of Radioactive Waste Management, Bureau of Solid & Hazardous Waste Management, S.C. Department of Health & Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201.

21. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 5, 6, and 7 of this license and conduct site operations in accordance with statements, representations, operating procedures, and disposal criteria, heretofore made by the licensee or his authorized representative in application for and subsequent to issuance of S.C. Radioactive Material License No. 097, and amendments thereto.

Receipt, Acceptance and Inspection Conditions

22. The licensee shall not accept radioactive waste for storage or disposal unless the shipper has completed the required information for the waste shipment on a Barnwell Waste Management Facility's Radioactive Shipment Manifest form or approved equivalent. Such form or revisions thereto shall be approved by the Department.

23. The licensee shall not accept radioactive waste for storage or disposal unless the generator of such waste has a valid, unsuspended Radioactive Waste Transport Permit issued by the S.C. Department of Health and Environmental Control.

24. The licensee shall not accept radioactive waste for storage or disposal unless the shipper has provided a properly executed Department Form, DHEC-803, Radioactive Waste Shipment Certification Form, Part I and II. Shipments consisting of more than 75 cubic feet or containing more than one (1) curie shall also be accompanied by a properly completed and

executed Department Form, DHEC-802, Radioactive Waste Prior Notification and Manifest Form. Changes to the shipment identification number on the forms may be made by the licensee, provided that the Department is notified of the change no later than the last day of the month for which the shipment was originally scheduled. Forms shall not be carried over more than one month.

25. The licensee shall only accept radioactive waste shipments for storage or disposal which have been inspected by a representative of the Department. The licensee shall assist the Department in inspection, sampling and analysis of the waste as deemed necessary by the Department to ensure compliance with the requirements of this license.

26. Notwithstanding other conditions of this license, the licensee shall not accept radioactive waste for storage or disposal unless he has received advanced written notification of any waste shipment containing unusual hazards or potential hazards including but not limited to, physical, gaseous, chemical, pyrophoric, or excessive removable contamination on the disposal containers shipped inside casks or excessive internally contaminated casks, and unexpected high radiation levels at the disposal container surfaces.

27. The licensee shall immediately notify the Department or the Department's on-site representative of any waste shipments where a violation of applicable regulations or license conditions has been found.

28. The licensee shall notify the shipper and the Department when any shipment of radioactive waste or part of a shipment has not arrived within 60 days after the advance copy of the shipment manifest or shipping papers was received by the licensee.

29. The licensee shall notify the shipper when it has been determined that a radioactive waste shipment or part of a shipment cannot be accepted for disposal by the licensee.

30. The licensee shall acknowledge receipt of the waste within 7 days of its acceptance for disposal by returning a signed copy of the shipment manifest or shipping papers to the shipper. The licensee shall indicate on the returned copy of the shipment manifest or shipping papers any discrepancy between the waste description listed on the manifest or papers and the waste materials received in the shipment.

Waste Characteristics and Waste Form Conditions

31. The licensee shall not accept any radioactive waste for storage or disposal unless the shipper has marked each disposal container, as specified by the licensee, to identify its classification as either Class A, stable or unstable (S or U), Class B, or Class C waste, and certifies that the waste materials have been classified and prepared in accordance with the following waste classification table:

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Material License
Supplementary Sheet

License Number 097
Amendment Number 46

Waste Classification Table

RADIONUCLIDES Table I (long-lived)	CONCENTRATION LIMITS IN CURIES/CUBIC METER* Class A	Class B	Class C
C-14	≤ 0.8		≤ 8
C-14 in activated metal	≤ 8		≤ 80
Ni-59 in activated metal	≤ 22		≤ 220
Nb-94 in activated metal	≤ 0.02		≤ 0.2
Tc-99	≤ 0.3		≤ 3
I-129	≤ 0.008		≤ 0.08
	CONCENTRATION LIMITS IN NANOCURIES/GRAM		
Alpha emitting transuranics with half-life greater than 5 years	≤ 10		≤ 100
Ra-226	≤ 10		≤ 100
Pu-241	≤ 350		≤ 3500
Cm-242	≤ 2000		≤ 20000
Table II (short-lived)	CONCENTRATION LIMITS IN CURIES/CUBIC METER* Class A	Class B	Class C
Total of all with half-life less than 5 years	≤ 700	> 700	
H-3	≤ 40	> 40	
Co-60	≤ 700	> 700	
Ni-63	≤ 3.5	≤ 70	≤ 700
Ni-63 in activated metal	≤ 35	≤ 700	≤ 7000
Sr-90	≤ 0.04	≤ 150	≤ 7000
Cs-137	≤ 1	≤ 44	≤ 4600

*curies/cubic meter is equivalent to microcuries/cubic centimeter

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A. The concentration of a radionuclide or radionuclide mixture may be averaged over the volume of the waste and, if used, the solidification agent or matrix if the waste form is a homogenous mixture. The concentration of radionuclides in filters/sealed sources encapsulated with a solidification agent or matrix shall be averaged over the volume of the filter/sealed source not the solidification agent. The volume of packaging, containers, liners, or overpacks shall not be included in this calculation, nor shall the volume of the waste mixture be artificially increased with the addition of non-dispersible solids or objects even if considered as waste.

If expressed in units of nanocuries per gram, concentration may be averaged over the weight of the waste and, if used, the solidification agent if homogenous, except in the case of encapsulation of filters which shall be over the weight of the filter. The weight of packaging, containers, liners, or overpacks shall not be included in this calculation, nor shall the weight of the waste mixture be artificially increased by the addition of heavy, non-dispersible solids or objects even if considered as waste.

B. The waste is Class A if none of the listed radionuclides are present.

C. There are no upper limits in Class B waste for the first three radionuclides listed in Table II.

D. There are no Class B values for the first nine (9) radionuclides listed; their presence classifies the waste as either Class A or Class C according to their concentrations.

E. The waste class for mixtures of radionuclides is determined by deriving for each radionuclide the ratio between its concentration in the mixture and its concentration limit in the table and adding the resulting ratio values for each radionuclide group. All limits used in the calculation must be for the same waste class. The sum of the ratios for each group must be less than or equal to 1.0 or the waste is of a higher classification than that used for the calculation.

F. If Class C limits are used in the calculation and the sum of the ratios for either group is equal to or exceeds 1.0, the waste is not acceptable for disposal without prior written approval form the Department.

G. If the concentration of any single radionuclide exceeds Class C values in the table, the waste is not acceptable for disposal without prior written approval from the Department.

H. Concentrations for C-14, Ni-59, Ni-63, and Nb-94 in activated metal must be evaluated for any irradiated metal component, filters and filter material associated with spent fuel pools.

I. Waste containing radium may be accepted only if the requirements of Condition 44 of this license are met.

32. A. Unless otherwise specified in this license, the licensee shall not receive any liquid radioactive waste regardless of the chemical or physical form. Absorbent materials may be placed in packages of dry, solid waste to absorb unintentional and incidental amounts of liquids. Further, liquids in the interstitial spaces of transport casks and containers shall be removed to the extent practical.

B. Solidified or dewatered radioactive waste shall have no detectable free standing liquids in excess of one-half percent (0.5%) by waste volume of non-corrosive liquids per container.

C. In lieu of the requirements of paragraph B. above, solidified or dewatered waste containing non-corrosive liquids in excess of one-half percent (0.5%) by waste volume, and less than on percent (1%) non-corrosive liquids by waste volume, may be received and disposed of in high integrity containers approved by the Department.

33. A. Unless otherwise specified, the licensee shall only receive aqueous liquids and other applicable waste forms which have been solidified or otherwise stabilized with one of the following solidification media:

a. Vinyl Ester Styrene
b. Cement
c. Bitumen (see Subparagraph E. below)
d. Vinyl Chloride

B. Solidification media and processes used to stabilize Class A aqueous liquids and other Class A wastes containing isotopes with greater than five (5) year half-lives having a total specific activity if all these isotopes of 1 microcurie/ cubic centimeter or greater, and all applicable Class B and C waste, shall meet and have been evaluated in accordance with the "Stability Guidance" requirements of the U.S. Nuclear Regulatory Commission's Waste Management Division, Technical Position on Waste Form, (Revision 1), dated January 1991, or other evaluation criteria or methods specifically approved by the NRC or the Department.

C. Solidified Class A aqueous liquids and other applicable waste forms with a specific activity of less than 1 microcurie/cubic centimeter, shall meet the requirements of the "Solidified Class A Waste Products" of the NRC Technical Position on Waste Form, (Revision 1) dated January 1991.

D. Other solidification media and processes shall be acceptable for which a topical report has been prepared and received approval from the U.S. Nuclear Regulatory Commission with concurence from the Department or approval by the Department.

E. The licensee shall only receive for disposal, full formula, oxidized bitumen (asphalt) solidified waste, which is a free standing monolith as received for disposal, and certified as such by the waste generator.

34. Except as specifically provided in this license, the licensee shall not accept liquid radioactive waste packaged in absorbent materials, or where absorbent materials have been used to absorb liquids rather than properly solidified with an approved media.

35. Regardless of the waste classification of Condition 31, and unless otherwise authorized by the Department, the licensee shall not receive evaporator bottoms or concentrates, residues, sludges, or other waste which may contain free standing liquids, unless they are solidified in accordance with Condition 33, and meet the requirements as specified in Condition 32. Evaporator bottoms or concentrates which contain no free standing water and are not free flowing are acceptable for disposal when processed by a method specifically approved by the Department.

36. The licensee may receive resins and filter media in a dewatered form provided that the free standing liquid requirements of Condition 32 and the requirements of Condition 38 are met.

37. The licensee shall not receive containers of ion exchange resins or filter media (dewatered or solidified) unless records of complete radiological analyses (quantitative and qualitative) are provided. The records must specify the specific activity of each radionuclide expressed in microcuries/cubic centimeter and transuranic radionuclides in nanocuries/gram.

38. Regardless of the waste classification of Condition 31, ion exchange resins and filter media containing isotopes with greater than five (5) year half-lives having a specific activity of all these isotopes of 1 microcurie/cubic centimeter or greater must be stabilized by solidification in accordance with Condition 33 and meet the free standing liquid requirements of Condition 32.B. However, in lieu of solidification, the Department will authorize disposal of these waste forms meeting the free standing liquid requirements of Condition 32.C. in

approved high integrity containers or other approved methods of stabilization.

39. Unless specifically provided otherwise, the licensee shall dispose of all classes of wastes in concrete overpacks or vaults which are approved by the Department and provided by the site operator. Void spaces within the waste and between the waste and its packaging shall be reduced to the extent practicable, but in no case shall less than eighty-five percent (85%) of the capacity of the containers be filled for all waste classes unless placed in a High Integrity Container. The licensee may allow a variance from this condition in certain instances, but only after receiving a written justification from the waste generator prior to receiving the waste shipment. Variance justifications and approvals shall be maintained for review by the Department.

40. Radioactive waste containing transuranic radionuclides within the limits specified in Condition 31 are acceptable provided that the transuranic radionuclides are evenly distributed within a homogeneous waste form and are incidental to the total radioactivity. Incidental in this condition is defined as not more than one percent (1%) of the total activity. This license does not authorize the receipt of disposal of components or equipment primarily contaminated with transuranic radionuclides on vehicles, equipment, or components, with contamination limits in excess of those specified in Condition 55.

41. Household or industrial smoke or gas detectors containing Americium-241 foils which may exceed the transuranic radionuclide limit specified in Condition 31 of this license may be accepted for disposal provided the entire detector is received for disposal.

42. The licensee shall not receive or dispose of sealed sources or special form radioactive materials containing more than 5 curies of radioactive material with half-lives greater than 5 years except in a container which provides long term containment. Such containers are subject to approval by the Department. Irradiated metal components which have similar characteristics of special form radioactive materials are subject to Department review for disposal container requirements.

The licensee may accept the following sealed sources and maximum total activities provided that the sources are encapsulated with a minimum of four (4) inches of cement on all sides having a minimum compressive strength of 2,500 pounds per square inch.

Radionuclide	Maximum Total Activity (microcuries)
C-14	100
Ni-59	100
Nb-94	0.01
Tc-99	10
I-129	0.01
Radionuclides in Condition 31. Table II	10^7

43. The licensee shall not receive toluene, xylene, dioxane, scintillation liquids which exhibit hazardous properties or other organic liquids or solids with similar chemical properties except as specified below:

A. Containers which have contained any of the liquids mentioned above are acceptable for disposal after treatment as specifically authorized by the Department.

B. The ash and/or residue from the incineration of these wastes are acceptable in accordance with Condition 45 of this license.

44. Unless otherwise authorized by the Department the licensee shall not receive any radioactive waste containing Radium except for:

A. Radium contained in solid homogeneous waste forms in which the Radium activity is incidental to the total activity and the concentration of Radium has not been technologically enhanced or,

B. Radium contained in the following devices: self-luminous dials, hands of dials, timepieces, compasses, and electron tubes provided that the entire device is received and buried, or

C. Radium contained in biological research waste.

D. Radium sources specifically approved by the Department.

45. The licensee shall not receive radioactive waste in the forms of incinerator ash or powder which may be dispersible unless solidified with a media specified in Condition 33 of this license, or packaged to prevent dispersion as specifically approved by the Department. In lieu of solidification, these waste forms may be received in high integrity containers approved by the Department, provided the waste is rendered nondispersable with a binding matrix.

46. Radioactive waste containing chelating agents between 0.1 percent and 8 percent be weight in the waste as received for disposal shall be in High Integrity Containers or shall be stabilized by solidification with a media specified in Condition 33 of this license or an alternative method specifically approved by the Department.

47. The licensee may only receive gaseous radioactive materials of Krypton 85, Xenon 133, and Tritium for burial provided they meet the following criteria:

A. For Krypton 85 and Xenon 133:

a. Burial containers must be U.S. Department of Transportation specification cylinders or U.S. Nuclear Regulatory Commission approved sealed sources.

b. Internal pressure of containers may not exceed 1.5 atmospheres.

c. Total activity of containers shall not exceed 100 curies each.

B. For Tritium:

a. Only sources approved by the U.S. Nuclear Regulatory Commission or an Agreement State may be received for disposal.

b. The source/device must be received intact.

c. The internal pressure of the source shall not exceed 1.5 atmospheres.

d. Sources/devices must be packaged to prevent breakage.

e. The maximum activity per disposal container shall not exceed 1000 curies.

f. Devices requiring stabilization based on waste classification (using the volume of the source/device only) must be placed in a high integrity container or encapsulated with an appropriate stabilization media.

48. A. Unless otherwise authorized, the licensee shall not receive for storage nor disposal any mixed low-level radioactive waste defined as waste that satisfies the definition of low-level radioactive waste specified in the Low-Level Radioactive Waste Policy Amendments Act of 1985 (P.L. 99-240), and contains waste that either (1) is listed as hazardous waste in Subpart D, 40 CFR 261, or (2) causes the waste to exhibit any of the hazardous waste characteristics identified in Subpart C, 40 CFR Part 261.

B. The licensee may however receive waste that has been treated by acceptable methods to render it nonhazardous and therefore not subject to the jurisdiction of the Resource Conservation and Recovery Act (RCRA). Waste which may contain discrete quantities of hazardous or toxic materials may be evaluated for disposal by the licensee and such evaluations provided to the Department for consideration of approval.

49. The licensee shall not receive radioactive waste that is readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperature, or of explosive or exothermic reaction with water.

50. The licensee shall not receive radioactive waste which contains or is capable of generating quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling or disposing of the waste. This does not apply to radioactive gaseous waste packaged in accordance with Condition 47 of this license.

51. The license shall not receive or dispose of any pyrophoric material or flammable solids. These materials contained in waste shall be treated, prepared and packaged to be nonflammable and the final waste form rendered nonpyrophoric and nonflammable prior to transportation and receipt.

52. The licensee shall not receive or bury oil or petroleum based materials in any physical form. However, this does not prohibit the receipt and disposal of waste containing incidental or trace amounts of oil or petroleum based materials which have been absorbed, provided that the amount of absorbed oil and petroleum based materials does not exceed one percent (1%) by waste volume in a container.

53. The licensee shall not receive radioactive waste containing hazardous biological, pathogenic, or infectious material unless treated to reduce to maximum extent practicable the potential hazard from the materials. In addition, radioactive waste containing biological, pathogenic, or infectious material shall be doubly packaged in new or properly recertified 17-H DOT specification containers or equivalent as follows:

A. First, the inner container having a capacity of 55-gallon or less shall have a water tight liner at least 4 mils thick hermetically sealed after filling.

B. The biological material shall be thoroughly layered in the inner container in a ratio of thirty (30) parts biological material to at least one (1) part slaked lime and ten (10) parts absorbent, which shall be agricultural grade 4 vermiculite or medium grade diatomaceous earth, or other adsorbents that have received approval

from the Department by volume. The addition of formaldehyde is strictly prohibited.

C. The closure on the inner container shall be a standard lid with securely attached ring and bolt. Lever locks are not acceptable.

D. Unless otherwise authorized by the Department, the outer container, which shall have a volume of at least 1.5 times the inner container shall be filled initially with at least 4 inches of absorbent material, specified in B., the inner container in an upright position, and the remaining volume filled with the absorbent material, then securely closed and properly sealed.

Contamination Limit Conditions

54. For receipt at the Barnwell Site, all shipments shall comply with contamination control limits as prescribed in U.S. Department of Transportation Regulations, 49 CFR 173.443.

Enclosed radioactive material transport vehicles used solely for transporting radioactive materials and marked "For Radioactive Material Use Only" and accessible surface of transport casks and trailer shall not be released from the site if contamination limits exceed the following:

A. Fixed contamination of 10 mR/hr on contact with the interior surface or 2 mR/hr at 1 meter from the interior surface.

B. Removable contamination of 2200 dpm/100 sq. cm. Beta-gamma or 220 dpm/100 sq. cm. Alpha. This applied to interior and exterior surfaces.

C. Fixed contamination of 0.5 mR/hr on contact with any exterior surface.

Internally contaminated (fixed or removable) shipping casks released from the site are subject to applicable shipping regulations of the U.S. Department of Transportation. The licensee shall also inform the recipient of such casks in advance of the contaminated nature of the cask. Records of such notifications shall be retained for review by the Department.

55. Vehicles used solely for transporting radioactive material and ar not marked "For Radioactive Material Use Only" shall not be released from the site if the contamination limits exceed the following:

A. Fixed contamination of 0.5 mR/hr at any accessible surface.

B. Removable contamination of 2200 dpm/100sq. cm. Beta-gamma, or 220 dpm/100sq. cm. Alpha.

56. Vehicles or items for unrestricted use shall not be released from the site if the contamination limits exceed the following:

A. Fixed contamination of 0.1 mR/hr at any accessible surface.

B. Removable contamination of 220 dpm/100sq. cm. Beta-gamma, or 22 dpm/100sq. cm. Alpha.

57. The licensee shall perform decontamination on vehicles, equipment, or components, with contamination limits in excess of those specified in Condition 55 in a controlled environment.

58. The licensee shall not use its vehicle wash-down facility for any vehicles or equipment with removable contamination limits in excess of those specified in Condition 55 unless specifically approved by the Department.

General Packaging Conditions

59. All radioactive waste shall be packaged and loaded in accordance with applicable U.S. Department of Transportation Regulations, U.S. Nuclear Regulatory Commission Regulations 10 CFR Part 71, the requirements of this license, and the disposal site criteria.

60. Unless otherwise authorized, all radioactive waste shall be received and buried in closed containers. Containers which have been altered, and solidification or encapsulation media intended to serve as containers or container closures, are not acceptable unless approved by the Department. Loose radioactive waste and solidification residuals within shipping casks are prohibited.

61. The licensee shall not receive any package to be used as the final burial container that is corroded to the point of degradation or damage. Any package used as the final burial container shall be of such material construction that there will be no significant chemical, galvanic, or other reaction among the packaging components, or between the packaging components and the package contents.

62. The licensee shall, to the extent practicable, repair or repackage any damaged package used as the final burial container if such packages are approved for acceptance by the Department.

63. Prior to burial, the licensee shall, to the extent practicable, remove all liquids from waste packages found in excess of allowable limits if such packages are approved for acceptance by the Department.

64. The licensee shall not receive shipments of radioactive materials unless appropriate lifting devices of sufficient length has been provided and securely attached to containers and palletized shipments within a cask.

65. The licensee is not authorized to open any packages at its facility, except for the following:

A. For purposes of repairing or repackaging damaged containers.

B. For purposes of inspecting to insure compliance with this license.

C. For purposes of returning outer shipping containers.

D. For purposes of confirming package contents.

Site Design, Construction and Maintenance Conditions

66. Construction of waste burial trenches shall be in accordance with CNSI Procedure S20-AD-008, "Trench Construction" Class A waste trenches will be constructed in accordance with Drawing No. B-215-D-004, "Class A Trench Construction Details." Class B/C waste trenches will be constructed in accordance with Drawing No. B-215-D-007, "Class B/C Trench Construction

Details." Any changes to these drawings, specifications, or procedures must have approval from the Department before implementation.

67. The licensee shall not begin construction of any trench prior to approval of the Department as to location, trench bottom elevation and intended use.

68. The licensee shall not initiate burial operations in newly excavated trenches until the Department has inspected and approved the trenches. An initial inspection will be made by the Department upon completion of excavation of the trench, excavation for the infiltrate detection and monitoring system, and drainage ditches adjacent to the trench. An intermediate inspection will be made by the Department after the infiltrate detection and monitoring system has been complete. A final inspection will be made by the Department upon completion of construction. Trench backfill and completion shall be performed in accordance with CNSI Procedure S20-AD-008, "Trench Construction."

69. Construction of slit trenches shall be in accordance with CNSI Drawing No. B-215-D-0011, "Slit Trench Construction Details." Trench backfill and completion shall be performed in accordance with CNSI Procedure S20-AD-008, Trench Construction. An initial inspection shall be made by the Department at the completion of excavation, and final inspection shall be made at the completion of construction before burial begins.

70. A. Backfilling shall be performed for each trench design in accordance with CNSI Procedure S20-AD-008. Completed trenches shall at no time be used for stockpiling large volumes of earth not withstanding provisions for a final grading plan.

B. The licensee shall design trench covers to minimize to the extent practicable water infiltration, to direct percolating or surface water away from the disposed waste, and to resist degradation by surface geologic processes and biotic activity.

71. Open trenches to include trenches under construction and partially filled trenches shall be protected to prevent runoff water from entering trenches. Radioactive waste shall not be placed into trench areas where water has accumulated. Burial of radioactive waste into trenches with unusual amounts of water shall immediately cease until the origin of water has been determined and corrective action taken.

72. The licensee shall use proper surface water management techniques on the site to insure that:

A. Erosion is minimized.
B. Surface runoff is directed away from the trenches.
C. Accumulation of standing water is minimized.
D. Standing water in the immediate disposal area is prevented.

73. All monitoring wells, sumps, shall be sufficiently capped or covered to prevent the introduction of extraneous material or infiltration of water. All well and sump pipes shall be protected from damage.

74. The licensee shall, at least monthly, perform an inspection of completed trenches and capped areas in accordance with CNSI Procedure S20-OP-007, "Completed Trench Inspection Procedure", to ascertain any erosion, settling, cracking, subsidence, or loss of ground cover grasses and make corrections immediately. Documentation of the inspection findings and all repairs even if the repairs were performed as a routine maintenance

function shall be made and incorporated into a permanent record and submitted with the stabilization plan for final site closure.

75. The licensee shall initiate closure and stabilization measures as each trench is filled and covered. Interim or final grades shall be established and seeding of trench covers shall commence at no more than one year following final trench burial operations. Active waist disposal operations must not have an adverse effect on completed closure and stabilization measures.

76. The licensee shall use any reasonable means, including but not limited to fencing and security personnel, to prevent unauthorized entry into the restricted area of the site.

77. The boundaries and locations of each disposal trench shall be accurately located and mapped by means of a land survey. Temporary trench boundary markers and trench identification markers shall be erected upon completion of backfill operations until permanent markers are installed.

78. A series of markers, one at the end of each completed trench and on each corner, shall be installed upon completion of the seeding of trench covers. End monuments shall be constructed of granite. Trench corner markers shall be constructed in accordance with CNSI Drawing No. B-215-C-0010. The following information shall be reported to the Director, Division of Radioactive Waste Management, Bureau of Solid & Hazardous Waste Management, S.C. Department of Health and Environmental Control, 2600 Bull Street, Columbia, S.C. 29201:

A. Total activity of radioactive material in curies total amount of source material in pounds, and total amount of special nuclear material in grams in the trench.

B. Date of completion of the burial operations; and

C. Volume of waste in the trench.

Burial Operation Conditions

79. Unless specifically authorized by the Department, the licensee shall not exhume previously buried waste.

80. All waste shall be placed in vaults which will provide additional structural stability. Structural evaluations for large components may be submitted to the Department for review and with concurrence from the Department will not require disposal in a vault. The licensee shall construct the vaults in accordance with procedures, drawings, standards, and a quality assurance plan that have received approval from the Department.

81. The disposal trenches and vaults shall be designed and constructed to meet the following objectives:

A. to minimize the migration of water onto the disposal trench.

B. to minimize the migration of waste or waste contaminated water out of the disposal units.

C. to detect water or other liquids in the trenches.

D. to provide for temporary collection and retention of water and other liquids for a time sufficient to allow for the detection and removal or other remedial measures without the contamination of groundwater or the surrounding soil.

E. to facilitate remedial methods without disturbing other disposal trenches.

F. to provide reasonable assurance that the waste will be isolated for at least the institutional control period.

G. to prevent contact between the waste and the surrounding earth, except for earthen materials used for backfilling within the disposal unit.

82. Wastes designated as Class C pursuant to Condition 31 of this license, shall be disposed of so that the top of the waste is a minimum of 5 meters below the top surface of the cover or shall be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for at least 500 years. Such intruder barrier designs must be specifically approved by the Department.

83. The licensee shall handle and emplace packages of radioactive waste in disposal trenches in such a manner that maintains packaging integrity during handling, emplacing, and subsequent backfilling. Waste packages deposited in trenches shall be protected from any adverse operations which may cause damage to them.

84. The licensee shall emplace disposal vaults in such a manner to minimize voids between vaults and permit voids between vaults to be filled with earth to reduce future trench subsidence.

85. The licensee shall be a "Registered User" of all licensed casks delivered to the site containing radioactive waste for disposal.

86. At least one health physics technician shall be present during all waste handling, offloading, and disposal operations.

87. The licensee shall maintain radiation levels at the edge of the open trenches at or below 100 mR/hr.

88. Licensee personnel shall wear appropriate protective clothing, apparatus, and gloves at all times while handling or disposing of radioactive waste.

89. Vaults shall be covered within six (6) months of being filled with waste unless otherwise approved by the Department.

90. The licensee shall bury containers of Krypton 85 and Xenon 133 gaseous radioactive materials in upright positions within concrete overpacks or vaults. Each gas container shall be disposed in different overpacks or vaults unless otherwise authorized by the Department.

91. Unless specifically authorized, the licensee shall not store any package containing radioactive waste for a period greater than six months from the date of receipt of the package prior to burial. Radioactive waste shall not be stored in the trench area or an open environment for a period greater than ten (10) days from receipt, and shall be protected from damage and inclement weather conditions.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Material License
Supplementary Sheet

License Number 097
Amendment Number 46

Environmental Surveillance Conditions

92. The licensee shall conduct an on-site monitoring and environmental monitoring program capable of detecting the potential contribution of radioactive material and hazardous constituents from the site to the environment. The monitoring program shall be performed in accordance with CNSI Procedures

93. Should any samples taken from the monitoring wells, or air samples reveal increases in the concentration of radioactive material which were determined prior to commencement of the burial operations, the licensee shall perform further surveys to determine whether or not the increase is due to the land burial operations. The licensee shall notify the Director, Division of Radioactive Waste Management, Bureau of Solid & Hazardous Waste Management, S.C. Department of Health and Environmental Control, within 48 hours of any such increases.

94. The licensee shall submit results of all scheduled environmental sampling and analysis to the Department quarterly.

95. Monitoring wells shall be placed outside the trenches but in the trench area. Specific locations shall be determined through consultation. All wells shall be grouted, sealed and capped.

96. As radioactive material buried may not be transferred by abandonment or otherwise, unless specifically authorized by the Department, the expiration date of this license applies only to the above ground activities and to authority to bury radioactive material wastes at the site specified in Condition 9. The license continues in effect and the responsibility and authority for possession of buried radioactive material waste continues until the Department finds that the plan established for preparation of the Barnwell Site for transfer to another person has been satisfactorily implemented in a manner to reasonably assure protection of the public health and safety and the Department takes action to terminate the licensee's responsibility and authority under this license. All requirements for environmental monitoring, site inspection, maintenance and site security continue whether wastes are being buried or not.

97. The licensee shall develop a site closure and stabilization plan that addresses, as a minimum, the following performance objectives:

A. Bury all waste in accordance with the requirements of the license.

B. Dismantle, decontaminate, as required, and dispose of all structures, equipment, and materials that are not to be transferred to the site custodian.

C. Document the arrangements and the status of the arrangements for orderly transfer of site control and for long term care by the government custodian. Also document the agreement, if any, of state or federal governments to participate in, or accomplish, any performance objective. Specific funding arrangements to assure the availability of funds to complete the site closure and stabilization plan must be made.

D. Direct gamma radiation from buried wastes should be essentially background.

E. Demonstrate by measurement and/or model during operations and after site closure that concentrations of radioactive material which may be released to the general environment in ground water, surface

water, air, soil, plants, or animals will not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public.

F. Render the site suitable for surface activities during custodial care. Planned custodial care may be limited to activities such as vegetation control, minor maintenance, and environmental monitoring. However, use of the site surface for activities such as parking lots may be planned. Final conditions at the site must be acceptable to the government custodian and compatible with its plan for the site.

G. Demonstrate that all trench elevations are above water table levels taking into account the complete history of seasonable fluctuations.

H. Eliminate the potential for loss of site or trench integrity due to factors such as erosion, surface water, wind, subsidence, and frost action. For example, an overall site surface water management system must be established for humid sites to drain rainwater and snowmelt away from the burial trenches. All slopes must be sufficiently gentle to prevent slumping or gullying. The surface must be stabilized with established short rooted grass, rock, riprap, or other measures. Trench caps must be stabilized to minimize erosion, settling, or slumping of caps.

I. Demonstrate that trench markers are in place, stable, and keyed to benchmarks. Identifying information must be clearly and permanently marked.

J. Compile and transfer to the Department complete records of site maintenance and stabilization activities, trench elevation and locations, trench inventories, and monitoring data for use during custodial care for unexpected corrective measures and date interpretation.

K. Establish a buffer zone surrounding the site sufficient to provide space to stabilize slopes, incorporate surface water management features, assure that future excavation on adjoining areas would not compromise trench or site integrity, and provide working space for unexpected mitigating measures in the future. The buffer zone must also be transferred to the custodial agency. The buffer zone may generally be less than 300 feet but not less than 100 feet.

L. Provide a secure passive site security system (e.g., a fence) that requires minimum maintenance.

M. Stabilize the site in a manner to minimize environmental monitoring requirements for the long-term custodial phase and develop a monitoring program based on the stabilization plan.

N. Investigate the causes of any statistical increases in environmental samples which have occurred during operation and stabilization. In particular, any evidence of unusual or unexpected rates or levels of radionuclide or hazardous constituent migration in or with the groundwater must be analyzed and corrective measures implemented.

O. Eliminate the need for active water management measures, such as sump or trench pumping and treatment of the water to assure that wastes are not leached by standing water in the trenches.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Material License
Supplementary Sheet

License Number 097
Amendment Number 46

P. Evaluate present and zoned activities on adjoining areas to determine their impact on the long-term performance of the site and take reasonable action to minimize the effects.

98. An interim site closure and stabilization plan, assessment of current operating practices, and the long term care plan for the site shall be submitted for review one year prior to the expiration date listed in Condition 4 of this license. The plan shall be consistent with Condition 97 of this license and shall include demonstration that funds are being set aside or other measures being taken are adequate to finance site closure and long term care. The plan shall also include preliminary estimates of costs, environmental impacts, data needs, personnel needs, material and equipment needs, planned documentation and quality assurance, and detailed plan for trench locations and elevations, expected capacities, planned surface contours, and buffer zones.

Date of Issuance August 11, 1995

For the South Carolina Department
of Health and Environmental Control

BY: _____
Virgil R. Autry, Director, Div.
of Radioactive Waste Management

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 31, 1995

Mr. William B. House
Chem-Nuclear Systems, Inc.
140 Stoneridge Dr.
Columbia, SC 29210

Dear Mr. House:

We have received your request for an amendment to your Nuclear Regulatory Commission License No. 12-13536-01, to add Mr. Mark S. Whittaker to the authorized user list in License Condition 4. Specifically, you requested Mr. Whittaker be identified as the Radiation Protection Officer for the Barnwell disposal facility, in place of Dr. Michael T. Ryan.

Please find enclosed Amendment 26 to your NRC License No. 12-13536-01. This amendment consists of two actions. First, the amendment corrects a transcription error that occurred during the publication of Amendment 23 of this license. Specifically, the preamble of the license was incomplete. A recent review of the current license (Amendment 25) and 10 CFR Part 70 requirements identified this error. Due to the diffuse nature of special nuclear material in waste, we have determined that a nuclear criticality is not credible during operations above ground. Therefore, in accordance with 70.14 an exemption to the criticality alarm monitoring requirements is granted.

Second, the amendment identifies Mr. Mark S. Whittaker as an authorized user and the Radiation Protection Officer under this license. We have coordinated this amendment with the State of South Carolina, Department of Health and Environmental Control.

If you have any questions about this amendment, please contact me at (301) 415-6751.

Sincerely,

Robert C. Pierson, Project Manager
Low-Level Waste Management and Decommissioning
Projects Branch
Division of Waste Management, NMSS

Enclosure: As stated.

License No.: 12-13536-01
Docket No.: 27-47

cc: Mr. V. Autry, SC DHEC

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Licensee:

CHEM-NUCLEAR SYSTEMS, INC.,
140 Stoneridge Drive
Columbia, South Carolina 29210

License Number: 12-13536-01

Amendment Number: Twenty-six (26)
Expiration Date: December 31, 1996
Docket Number: 27-47

The preamble to the license is amended to read:

"Pursuant to the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974 (Public Law 93-438); and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material;" a license is hereby granted to Chem-Nuclear Systems, Inc., 140 Stoneridge Drive, Columbia, South Carolina 29210, to receive, possess, store, and dispose of special nuclear material by burial at its facility near Barnwell, South Carolina. Under the authority of 10 CFR Part 70, Section 70.14, NRC grants an exemption to the Licensee from the provisions of 10 CFR Part 70, Section 70.24 as they apply to special nuclear material activities authorized under this license.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to the provisions of 10 CFR Part 20, "Standards for Protection Against Radiation," other applicable rules, regulations and orders of the U.S. Nuclear Regulatory Commission now or hereafter in effect and to the following conditions:"

Condition 4 of the license is amended to read:

4. Operations shall be conducted by or under the supervision of material users who are John S. Zawacki, Joseph J. Still, George Hurst, William B. House, Michael T. Ryan, and Mark S. Whittaker (Radiation Protection Officer) or other individuals designated by the licensee's Radiation Protection Officer upon successful completion of the licensee's training program (Chem-Nuclear System's, Incorporated Standard Operating Procedure S20-AD-004).

Dated this 31st day of March, 1995, in Rockville, MD.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Michael F. Weber

Michael F. Weber, Chief
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management

above.

REFERENCES:

1. Letter from William B. House, CNSI, to Robert C. Hogg, DWM, dated March 9, 1995.

2. U.S. Nuclear Regulatory Commission, License No. 12-13536-01, Amendment 22, November 23, 1982.

3. U.S. Nuclear Regulatory Commission, License No. 12-13536-01, Amendment 23, May, 1984.

4. "Safety Evaluation Report [for the] Renewal of Special Nuclear Materials License # 46-13536-01 for Barnwell Low-Level Waste Disposal Facility," September 1981.

5. Letter from Leo Higginbotham, DWM, to H. Wayne Huizenga, CNSI, dated May 17, 1984.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Docket No. 02700047
License No. 12-13536-01
Amendment No. 25

JUL 26 1994

Chem-Nuclear Systems, Inc.
ATTN: Mr. William B. House
Corporate Director of Licensing
140 Stoneridge Drive
Columbia, South Carolina 29210

Gentlemen:

In accordance with the statements, representations, and conditions specified in your application letter dated December 20, 1993, and pursuant to Title 10, Code of Federal Regulations (10 CFR), Part 70, Materials License 12-13536-01 is hereby amended to provide exemptions to certain package monitoring requirements of 10 CFR Part 20, and to include, by reference, specific written procedures, for safely opening packages in which radioactive material is received, that will comply with the intent of 10 CFR 20.1906(e). Other conditions of the license, with the exception of "address updates," shall remain the same.

Accordingly, License Condition 7 is revised to read as follows:

7. With the exceptions, listed under (a), (b), and (c) below, the licensee shall accept for disposal at the site only SNM that is packaged and prepared in accordance with NRC and Department of Transportation regulations and conditions of this license.

(a) Shipments arriving by exclusive use vehicle (e.g., delivered by contract carrier) are exempted from the package monitoring requirements of 10 CFR 20.1906(b)(1) and (2). For exclusive use shipments, monitoring for surface contamination shall be performed on: (1) areas within the vehicle that can be reached without entering the vehicle, and (2) areas on packages or transport units where surface contamination is suspected because of breached containers or the presence of uncontainerized material.

(b) Package monitoring required by 10 CFR 20.1906, with the exception provided in (a) above, shall be performed as soon as practicable after receipt of a package, but may exceed the limiting time requirements of 10 CFR 20.1906(c) for the following causes: (1) work loads; (2) inclement weather; or (3) disposal of special waste shipments.

(c) The written procedures required at 10 CFR 20.1906(e)(1) may include applicable parts of the appropriate Certificates of Compliance for transport casks or approved procedures/work instructions.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Licensee:	License Number: 12-13536-01
CHEM-NUCLEAR SYSTEMS, INC. 140 Stoneridge Drive Columbia, South Carolina 29210	Amendment Number: Twenty-five (25) Expiration Date: December 31, 1996 Docket Number: 27-47

License Number 12-13536-01 is amended in its entirety to read as follows:

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438); and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material;" a license is hereby issued to Chem-Nuclear Systems, Inc., 140 Stoneridge Drive, Columbia, South Carolina 29210, to receive, possess, store, and dispose of special nuclear material by burial at its facility near Barnwell, South Carolina.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to the provisions of 10 CFR Part 20, "Standards for Protection Against Radiation," other applicable rules, regulations and orders of the U. S. Nuclear Regulatory Commission now or hereafter in effect and to the following conditions:

GENERAL CONDITIONS

1. The licensee is hereby authorized to receive, possess and store prior to disposal by burial in the ground special nuclear material (SNM) up to the following quantities:

   (a) The total quantity of unburied uranium-233 (U-233) and uranium-235 (U-235) at the facility shall not exceed 200 grams of U-233 and 4500 grams of U-235 at any time.

   (b) No single package shall contain more than 200 grams of U-233 or 330 grams of U-235. For packages containing a combination of U-233 and U-235, the sum of the ratios of the individual quantity of each SNM radionuclide to the quantity specified above for that radionuclide shall not exceed unity.

   (c) Plutonium isotopes in waste and incidental to the total radioactivity, not to exceed the concentration limits set out in Condition 31 of South Carolina Radioactive Materials License No. 097, Amendment No. 45, and as limited by Condition 40 of that license. (See Appendix B).

(g) A description of any evidence of leaking or damaged packages containing SNM (including radiation or contamination levels in excess of NRC or DOT regulatory limits) and the repackaging operations necessary for these packages.

RECEIPT AND ACCEPTANCE CONDITIONS

7. With the exceptions, listed under (a), (b), and (c) below, the licensee shall accept for disposal at the site only SNM that is packaged and prepared in accordance with NRC and Department of Transportation regulations and conditions of this license.

(a) Shipments arriving by exclusive use vehicle (e.g., delivered by contract carrier) are exempted from the package monitoring requirements of 10 CFR 20.1906(b)(1) and (2). For exclusive use shipments, monitoring for surface contamination shall be performed on: (1) areas within the vehicle that can be reached without entering the vehicle; and (2) areas on packages or transport units where surface contamination is suspected because of breached containers or the presence of uncontainerized material.

(b) Package monitoring required by 10 CFR 20.1906, with the exception provided in (a) above, shall be performed as soon as practicable after receipt of a package, but may exceed the limiting time requirements of 10 CFR 20.1906(c) for the following causes: (1) work loads; (2) inclement weather; or (3) disposal of special waste shipments.

(c) The written procedures required at 10 CFR 20.1906(e)(1) may include applicable parts of the appropriate Certificates of Compliance for transport casks or approved procedures/work instructions.

8. Any SNM shipment in which there is evidence that SNM is missing or that the waste packages have been tampered with in transport shall be received by the licensee and safely stored pending notification of the Chief, Bureau of Radiological Health, South Carolina Department of Health and Environmental Control and the Chief, Nuclear Materials Safety and Safeguards Branch, Region II, NRC, Atlanta, Georgia 30323. The licensee shall not dispose of such packages until authorized by the State of South Carolina and NRC.

9. Unless otherwise authorized by this license, the licensee shall comply with the "Receipt, Acceptance and Inspection Conditions" contained in South Carolina Byproduct Material License Number 097, Amendment No. 45, as enforced by the State of South Carolina. In the event NRC finds it necessary to supplant State enforcement authority, these conditions will be enforced by and through this license.

Construction, Maintenance and Burial Operation Conditions" contained in South Carolina Radioactive Materials License Number 097, Amendment 45. If NRC finds it necessary to supplant State enforcement, these conditions shall be enforced by and through the conditions of this license.

ENVIRONMENTAL MONITORING CONDITIONS

16. The licensee shall conduct an onsite environmental monitoring program equivalent to that recommended in the Branch Technical Position on "Environmental Monitoring of Low-Level Radioactive Waste Disposal Facility," NUREG-1388, December, 1989. The licensee should sample groundwater up and down gradient of operating trenches and at sumps at disposal units to detect potential leachate from the trenches. For the purposes of this sampling, the licensee shall perform gross alpha, gross beta and a gamma isotopic analysis for these samples.

17. Increases in air or liquid effluents shall be reported to the Chief, Low-Level Waste and Decommissioning Projects Branch, NRC, Washington, DC 20555, in accordance with Condition 93 of the State of South Carolina Radioactive Materials License Number 097, Amendment 45, (dated January 1, 1990). If NRC finds it necessary to supplant State enforcement, this condition shall be enforced by and through the conditions of this license.

FACILITY PERFORMANCE REPORTING REQUIREMENTS

18. The licensee shall submit an annual facility utilization report to the Chief, Low-Level Waste and Decommissioning Projects Branch, Division of Waste Management, NRC, Washington, DC 20555 by March 31, of each year for the previous calendar year. This report shall provide:

    a. Identification of each disposal unit and description of all SNM waste emplaced during the previous year. A three dimensional identification to describe the disposal location of each SNM shipment of waste in excess of Class A concentrations and the disposal location of any SNM waste accepted for disposal which contains oils or chelates in excess of the limits authorized in this license shall also be provided beginning with the effective date of this Amendment. Three dimensional identification shall be within 50 feet horizontally and within 10 feet in the vertical plane.

    b. Percent of utilization of SNM for each operating stable and unstable trench or disposal unit filled during the previous calendar year.

SITE CLOSURE & STABILIZATION CONDITIONS

19. Unless otherwise authorized by this license, the licensee shall conduct site closure in accordance with the "Site Closure and Stabilization Conditions" contained in South Carolina Radioactive Materials License Number 097, Amendment 45, as enforced by the State. In the event NRC

This license shall expire on December 31, 1996. The authority under this license, however, to receive and dispose of SNM will expire on the date of expiration of the South Carolina Radioactive Material License No. 097. Conditions 19 and 20 above establish requirements for site closure, stabilization, transfer and termination.

Dated this 18th day of July, 1994 in Rockville, MD.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

John H. Austin

John H. Austin, Chief
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management

APPENDIX C

REGISTRATIONS AND LICENSES
MARTIN ENVIRONMENTAL SERVICES, INC.

STATE OF CALIFORNIA—CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
PETE WILSON, *Governor*

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
400 P STREET, 4TH FLOOR
P.O. BOX 806
SACRAMENTO, CA 95812-0806

(916) 323-3219

*** HAZARDOUS WASTE TRANSPORTER REGISTRATION ***

NAME AND ADDRESS OF REGISTERED TRANSPORTER:

Martin Environmental Services
P.O. Box 1128
Canyon Country, California 91351

TRANSPORTER REGISTRATION NO: 0335

EXPIRATION DATE: July 31, 1997

THIS IS TO CERTIFY THAT THE FIRM NAMED ABOVE IS DULY REGISTERED TO TRANSPORT HAZARDOUS WASTE IN THE STATE OF CALIFORNIA IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 6.5, DIVISION 20 OF THE HEALTH AND SAFETY CODE AND DIVISION 4.5, TITLE 22 OF THE CALIFORNIA CODE OF REGULATIONS.

THIS REGISTRATION CERTIFICATE MUST BE CARRIED WITH EACH SHIPMENT OF HAZARDOUS WASTE.

(AUTHORIZED SIGNATURE)

JUN 0 3 1996

(DATE)

cc: California Highway Patrol

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

HAZARDOUS MATERIALS
CERTIFICATE OF REGISTRATION

Registrant: MARTIN INDUSTRIAL PUMPING SERVICE INC.
Attn: Jennifer Comino
PO Box 1128
Canyon Country, CA 91386

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 060596 003 021E Issued: 06/06/96 Expires: 06/30/97

Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made avialable, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

NON-TRANSFERABLE LICENSE

LICENSE NUMBER	ISSUE DATE	EFFECTIVE DATE	EXPIRATION DATE
51873	2/14/96	----------	3/31/97

CHP CARRIER NUMBER	LOCATION		
CA— 772		☐ Duplicate	☐ Replacement
		☐ Initial	XX ☐ Renewal

LICENSEE NAME AND PHYSICAL ADDRESS *(only if different from below)*

Martin Environmental Services
20609 Placerita Canyon Road
Newhall, CA 91321

CONTROL NUMBER 119688

LICENSEE NAME AND MAILING ADDRESS

Martin Environmental Services
P. O. Box 1128
Canyon Country, CA 91351

Attn: Troy Schumacker

The person or firm named has been licensed pursuant to the California Vehicle Code for:

OPERATION OF:

- ☐ Emergency Ambulances
- ☐ Armored Cars
- ☐ (IMS) Inspection & Maintenance Station, File Code Number _____
- ☐ School Bus Contractor's License

HAZARDOUS MATERIALS TRANSPORTATION

- ☐ (HMX) Explosive subject to Division 14, Vehicle Code, Materials subject to Section 31302, Vehicle Code, and other hazardous materials.
- XX ☒ (HMO) Other Hazardous Materials.
- ☐ (HMW) Hazardous materials in certified waste hauler vehicles only (fee exempt); registration number:

CHP 360 (Rev 8-92) OPI 066

92 94620

EPA

ACKNOWLEDGEMENT OF NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

This is to acknowledge that you have filed a Notification of Hazardous Waste Activity for the installation located at the address shown in the box below to comply with Section 3010 of the Resource Conservation and Recovery Act (RCRA). Your EPA Identification Number for that installation appears in the box below. The EPA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with EPA; on all applications for a Federal Hazardous Waste Permit; and other hazardous waste management reports and documents required under Subtitle C of RCRA.

EPA I.D. NUMBER ➤ CAD000628636

NAME AND MAILING ADDRESS ➤ MARTIN INDUSTRIAL PUMPING SERVICE, INC.
P.O. BOX 1128
CANYON COUNTRY, CA. 91351

INSTALLATION ADDRESS ➤ 26752 OAK AVENUE
CANYON COUNTRY, CA. 91351

EPA Form 8700-12A (4-80)

ACORD. CERTIFICATE OF INSURANCE

CSR MU MARTS250 03/15/96

PRODUCER

Alexander & Alexander of CA
801 S. Figueroa St, #700
Los Angeles CA 90017

LISA MURDOCH
Phone No. 213-599-4000 Fax No.

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

MARTIN ENVIRONMENTAL SERVICES
P. O. BOX 1128
CANYON COUNTRY, CA 91351

Attn: Tom Martin

COMPANIES AFFORDING COVERAGE

COMPANY A: Commerce & Industry Ins. Co.
COMPANY B: Golden Eagle Insurance Company
COMPANY C: AIG Specialty Lines
COMPANY D:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY X CLAIMS MADE ☐ OCCUR OWNER'S & CONTRACTOR'S PROT	GLCM 340 68 30	03/14/96	03/14/97	GENERAL AGGREGATE PRODUCTS - COMP/OP AGG PERSONAL & ADV INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person)	$ $1,000,000. $ $1,000,000. $ $1,000,000. $ $1,000,000. $ $ 50,000. $ $ 5,000.
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS X SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS X Truckers Liab.	CA 505 13 77 Including Physical Damage $1,000 Deductible	03/14/96	03/14/97	COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$ $1,000,000. $ $ $
	GARAGE LIABILITY ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EACH ACCIDENT AGGREGATE	$ $ $
C	EXCESS LIABILITY ☐ UMBRELLA FORM X OTHER THAN UMBRELLA FORM	818-07-81	03/14/96	03/14/97	EACH OCCURRENCE AGGREGATE	$ 4,000,000 $ 4,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: ☐ INCL ☐ EXCL	NWC 273704-03	11/01/95	11/01/96	X STATUTORY LIMITS EACH ACCIDENT DISEASE - POLICY LIMIT DISEASE - EACH EMPLOYEE	 $ 1,000,000. $ 1,000,000. $ 1,000,000.
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

*10 day notice of Cancellation for non payment of premium. Auto policy includes MCS-90 endorsement.
Claims made retroactive date: 3-14-91

CERTIFICATE HOLDER

MASTER1

MASTER CERTIFICATE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
LISA MURDOCH

ACORD 25-S (3/93)

MARTIN ENVIRONMENTAL SERVICES

EQUIPMENT SCHEDULE

(1/12/96)

Vehicle #	Year	Make/Model	Vehicle ID #	Limits	Capacity	Gross Weight (lb)
T-2	1969	Thompson Black Iron Tank	TTM850	$ 5 MIL	4600 G	76,280
T-3	1981	Thompson Black Iron Tank	TTM1103	$ 5 MIL	5000 G	76,280
T-4	1985	Certified Stainless Steel Tank	1W9TLS3N9F1021085	$ 5 MIL	5100 G	80,000
T-5	1992	Perto Steel Stainless Steel Tank	1P9TAA204N2021187	$ 5 MIL	5500 G	80,000
T-6	1994	Thompson Stainless Tank/FT80775	1T9TF3825R1405372	$ 5 MIL	5300 G	80,000
T-7	1981	Mini-Pumper/Trailer	CAL284438	$150/300K	400 G	N/a
T-14	1988	Great Dane 48' Van/FT80892	1GRAA962XJ8090011	$ 5MIL		46,000
T-15	1986	Thayco 48' Van/FT80893	1XV10W824GE001605	$ 5 MIL		46,000
T-18	1988	Great Dane 48' Van	1GRAA9621JS020512	$ 5 MIL		40,000
T-20	1990	Fruehauf/Pull Trailer	1FRKCCS9000405	$ 5 MIL		30,000
5-A	1943	Pike Transfer Trailer	2123/2B43FB	$ 5 MIL		30,000
6-A	1987	Spartin Transfer Trailer	1S9TC2822HS107001	$ 5 MIL		30,000
11-A	1989	Spartin Transfer Trailer	1S9TC3526JS108023	$ 5 MIL		30,000
#-9	1987	Auto Car Tractor	1WATDCCG6GU300520	$ 5 MIL		46,000
#-10	1986	White Tractor	1WUZDCJG4GU300418	$ 5 MIL		46,000
#-11	1989	Freightliner Roll-Off Truck	2FVNASY95KV349077	$ 5 MIL		48,500
#-12	1989	Peterbilt Tractor	1XPCDB9X7KD275257	$ 5 MIL		46,000
#-16	1991	Peterbilt Roll-Off Truck	1XP6LB9X0MD606537	$ 5 MIL		48,500
#-17	1989	Peterbilt Truck (Box Van)	9DWST7G30KC012820	$ 5 MIL		30,000
#-19	1992	Aries Trailer Mount Steam Cleaner	1A9UP132XPB292128	$150K/300K		N/A
#-20	1993	Peterbilt Roll-Off Truck	1XP6LB9X2PD607452	$ 5 MIL		30,000
#-21	1994	White/GMC 3-Axle Tractor/SP33359	4V1WDBCH1RN675319	$ 5 MIL		46,000
#-23	1995	White/GMC 3-Axle Roll-Off/UT84104	4V2GCDCH3SN691195	$ 5 MIL		48,500
#-24	1991	Peterbilt 3-Axle Tractor	1XPCDR9X6MD301679	$ 5 MIL		46,000
#-25	1993	Kenworth 3-Axle Tractor	1XKADB9X4PJ585579	$ 5 MIL		46,000

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

SAFETY COMPLIANCE REPORT

MOTOR CARRIER SAFETY OPERATIONS

CHP 343 (Rev 4-89) OPI 062

INSPECTION LOC. (NUMBER, STREET, CITY OR COUNTY): SAME

TELEPHONE NUMBER: 287-3737 AREA CODE 805

CARRIER TYPE: TRUCK CODE: W

CARRIER REPRESENTATIVE'S NAME AND TITLE: TROY SCHUMACKER - DIR. OF TRANS

ADDRESS: 20609 PLACERITA CANYON RD. NEWHALL, CA. 91321

FLEET AND EMERGENCY RESOURCE INFORMATION

IM LIC. NO. / EXP. DATE	HMW REG. NO. 0335 / EXP. DATE	DMS LIC. NO. / EXP. DATE	PUC NUMBER

TRUCKS AND TYPES	TRAILERS AND TYPES	BUSES BY TYPE	REG. C.T.	HW VEH.	HW CONT.	DRIVERS
S, X	12 S, T, V	L H		19	99	15

SHOP	FUEL			SUB-AREA NUMBER	CHP 343 ISSUED	FIRST INSP. THIS YEAR	BIT	CHP 1060 COLUMN NO.
	GAS	DIESEL	LPG					
☒ YES ☐ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	540 E040	☐	☐ YES ☒ NO	☐ YES ☒	

INSPECTION RATINGS: S = Satisfactory U = Unsatisfactory C = Conditional UR = Unrated

MAINTENANCE PROGRAM	DRIVER RECORDS	REGULATED EQUIPMENT	HAZARDOUS MATERIALS	TERMINAL
1 S 2 S 3 S 4 S	1 S 2 S 3 S 4 S	1 S 2 S 3 S 4 S	1 S 2 S 3 S 4 S	1 S 2 S 3 S 4 S
NO. 19 TIME	NO. 10 TIME	NO. 89 TIME	TIME	TIME IN / TIME OUT

CONTAINERS/TANKS	VAPOR RECOVERY SYS.	MASTER CATEGORY	DATE OF LAST:
NO. 8 TIME	TESTED CERT.	☐ CARRIER ☐ TERMINAL ☒ BOTH	CHP 343 CHP 343A 7-14-95

REQMTS.	VIOL.	REMARKS
MAINTENANCE PROGRAM		ANNUAL HAZARDOUS WASTE HAULER - NO BIT FEES
DRIVER RECORDS		
DRIVER HOURS		CARRIERS PREVENTIVE MAINTENANCE PROGRAM
BRAKES	4	IS WORKING VERY WELL. ALL RECORDS
LAMPS-SIGNALS		INSPECTED ARE IN COMPLIANCE.
CONNECTING DEVICES		
STEERING & SUSPENSION		
TIRES & WHEELS		
EQUIPMENT REQMTS.	1	
CONTAINERS/TANKS		
HAZARDOUS MATERIALS		

DATE: 7-13-95 7-14-99

CARRIER'S NAME: MARTIN ENVIRONMENTAL SERVICES

INSPECTED BY: S. BUTTS I.D. NO.: A7094 SUSPENSE DATE: AUTO ☐ 7-96

FCN 28654 CA AND FC NUMBERS CA 772

MOTOR CARRIER CERTIFICATION

I hereby certify that all violations described hereon and recorded on attached vehicle inspection reports (pages 1 through), will be corrected in accordance with applicable provisions of the California Vehicle Code and the California Code of Regulations.

An unsatisfactory rated carrier who believes the rating is not justified, may, within five calendar days of the rating, request a review by a Motor Carrier Safety Unit Supervisor.

JURISDICTIONAL TERMINAL RATING: SATISFACTORY

SIGNATURE AND TITLE: Troy Schumacker / TRANSPORTATION DIRECTOR

DATE: 07-14-95.

Destroy previous editions. 89 87021

MARTIN ENVIRONMENTAL SERVICES
TRAINING OUTLINE

29CFR 1910

SUBPART C - GENERAL SAFETY AND HEALTH PROVISION

SUBPART E - MEANS OF EGRESS
1910.38 EMPLOYEE EMERGENCY PLANS AND FIRE PREVENTION PLAN

SUBPART G-OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL
1910.94 VENTILATION
1910.95 OCCUPATIONAL NOISE EXPOSURE

SUBPART I - PERSONAL PROTECTIVE EQUIPMENT
1910.132 GENERAL REQUIREMENTS
1910.133 EYE AND FACE PROTECTION
1910.134 RESPIRATORY PROTECTION
1910.135 HEAD PROTECTION
1910.136 FOOT PROTECTION
1910.138 HAND PROTECTION

SUBPART J - GENERAL ENVIRONMENTAL CONTROLS
1910.145 PERMIT REQUIRED CONFINED SPACE

SUBPART N - MATERIAL HANDLING AND STORAGE
1910.178 POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

SUBPART Z - TOXIC AND HAZARDOUS SUBSTANCES
1910.1000 AIR CONTAMINANTS
1910.1030 BLOODBORNE PATHOGENS

1910.120 HAZWOPPER TRAINING (40 HR TRAINING AND ANNUAL 8 HR REFRESHER)

HM 181 - HAZARDOUS MATERIALS DOCKET

HM 126F - HAZARDOUS MATERIALS TRAINING AND HANDLING

HM215A - UPDATES TO 126F - PROPER UN SHIPPING DESCRIPTIONS, ETC

40 CFR

PART 382 CONTROLLED SUBSTANCE AND ALCOHOL USE AND TESTING

PART 40 PROCEDURES FOR TRANSPORTATION WORKPLACE DRUG AND ALCOHOL TESTING PROGRAM

PART 391 QUALIFICATION OF DRIVERS

PART 395 HOURS OF SERVICE OF DRIVERS

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY PETE WILSON, Governor

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320

(916) 445-0931

November 21, 1995

NOTICE OF RECEIPT OF RENEWAL APPLICATION FOR REVIEW

THOMAS GRAY AND ASSOCIATES
1205 W. BARKLEY AVENUE
OARNGE, CA 92668

ATTN: THOMAS A. GRAY
RADIATION SAFETY OFFICER

DOCKET NUMBER: 112195-2105-30

LICENSE NUMBER: 2105-30

APPLICATION DATE: NOVEMBER 17, 1995

The above captioned renewal application has been docketed for review. Your application is deemed timely and accordingly, the license will not expire until final action has been taken by the Department. This application will be taken up in the order received.

Correspondence or other communication concerning the above referenced application must be submitted **in duplicate** and should make clear reference to your assigned docket number pertaining to this specific request. Future requests, not related to the above request, will be assigned a new docket number.

Thank you.

RADIOACTIVE MATERIALS LICENSING
RADIOLOGIC HEALTH BRANCH

State of California-Health and Welfare Agency

Department of Health Services

RADIOACTIVE MATERIAL LICENSE

Pursuant to the California Code of Regulations, Division 1, Title 17, Chapter 5, Subchapter 4, Group 2, Licensing of Radioactive Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, use, possess, transfer, or dispose of radioactive material listed below, and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders of the Department of Health Services now or hereafter in effect and to any standard or specific condition specified in this license.

1. Licensee	Thomas Gray & Associates, Inc.	3. License No. 2105-30	Amendment No: 36
2. Address	1205 West Barkley Avenue Orange, CA	4. Expiration date November 18, 1995	(2)
Attention:	Thomas A. Gray President	5. Inspection agency	Radiologic Health Branch Los Angeles

In response to the letter received December 13, 1994 and the letter dated January 5, 1995, both signed by Thomas A. Gray, License Number 2105-30 is hereby amended as follows:

6. Nuclide	7. Form	8. Possession Limit
A. Hydrogen 3	A. Packaged waste	A. Not to exceed 4000 Curies.
B. Any radioactive material except: (1) special nuclear material (2) source material (3) any other alpha emitters	B. Packaged waste	B. Not to exceed 150 Curies.
C. Alpha emitters except: (1) special nuclear material (2) source material	C. Packaged waste	C. Not to exceed 500 millicuries
D. Special nuclear material	D. Packaged waste	D. Not to exceed 15 grams
E. Source material	E. Packaged waste	E. Not to exceed 2,500 pounds
F. Any nuclide with atomic numbers 3-104	F. Contaminated wipe samples	F. Not to exceed 10 microcuries total
G. Any nuclide with atomic numbers 3-83	G. Calibration sources	G. Not to exceed 1.0 millicurie total
H. Radium 226	H. Sealed sources	H. 3 sources not to exceed 100 microcuries each.

9. Authorized Use

A. - E. To be used for receipt and storage of radioactive waste packaged in DOT approved containers. Transportation of radioactive waste within the State of California when each transport conforms to the California Radiation Control Regulations including Section 30373. **Packaged waste may also be transferred to specific licensees of the NRC or Agreement States for purposes of recycling/reuse, if a particular need exists, and the recipient takes title to the radioactive material.**

F. To be used incidental to testing for leakage or contaminations a customer service.

State of California-Health and Welfare Agency | Department of Health Services

RADIOACTIVE MATERIAL LICENSE

License Number: 2105-30

Supplementary Sheet

Amendment Number: 36

9. Authorized Use (continued)

G. and H. To be used for in-house calibration of instruments (excluding survey meters) and as check sources for instruments.

LICENSE CONDITIONS

10. Radioactive material shall be stored only inside the licensee's warehouse facility at 1205 West Barkley, Orange, CA.

11. This license is subject to an annual fee for sources of radioactive material authorized to be possessed at any one time as specified in Item 8 of this license. The annual fee for this license is required by and computed in accordance with Sections 30230-30232 of the California Radiation Control Regulations and is also subject to an annual cost-of-living adjustment pursuant to Section 113 of the California Health and Safety Code.

12. Radioactive material shall be used by, or under the supervision of, the following individuals:

(a) Thomas A. Gray

(b) Richard E. Gallego

(c) Frank Gutierrez

(d) David Levell

13. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 7, 8 and 9 of this license in accordance with statements, representations, and procedures contained in the documents listed below. The Department's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

(a) The letter with attached license renewal application and attachments dated October 10, 1984, as modified by the letters with attachments dated February 20, 1987, February 1, 1988 and March 17, 1989, all signed by Thomas a. Gray.

(b) The manual, "Health Physics Quality Assurance Manual For Radioactive Materials and Radioactive Wastes", Revision 3, dated March 1989.

(c) The letter with attachments dated December 5, 1988, signed by Thomas A. Gray.

(d) The letter dated September 22, 1989, signed by Thomas A. Gray.

(e) The letter dated March 22, 1994, signed by Thomas A. Gray.

State of California-Health and Welfare Agency | Department of Health Services

RADIOACTIVE MATERIAL LICENSE

License Number: 2105-30

Supplementary Sheet

Amendment Number: 36

14. (a) The Radiation Safety Officer in this program shall be Thomas A. Gray.

(b) The Alternate Radiation Safety Officer(s) in this program shall be Richard Gallego.

15. The Radioactive Shipment Record, from each customer, shall be on file describing:

(a) Total activity in millicuries, or in the case of source or special nuclear material, the total weight.

(b) The principal radioisotopes.

(c) The maximum radiation level at the surface of the container and at one meter from the source.

(d) The name and address of the licensee from whom the waste was received.

(e) The date of receipt of the package.

(f) Form of the radioactive material, specifically whether absorbed liquid, dry solid, animal carcasses or scintillation vials.

(g) Cataloging system (numbering or lettering) to be used for the accountability, and tracing of the radioactive material through the available documentation pertaining to the specifics of each container and generator.

16. The maximum period the licensee is authorized to store radioactive waste material is as follows:

(a) For solid material in noncombustible containers, 24 months.

(b) For solid material in combustible containers, six months.

(c) For absorbed liquid material and animal carcasses, 90 days.

17. This license does not authorize packaging or processing of radioactive material waste or the opening of DOT-approved packages containing radioactive material waste.

18. The licensee shall, with respect to all radioactive waste collected for disposal at licensed land burial sites, establish and maintain a training program, written operating and radiation safety procedures, and quality assurance inspection and testing procedures which assure that:

(a) All waste is properly segregated and identified with respect to those classes of waste being accepted for burial at the intended burial sites.

(b) Waste is properly packaged to conform to DOT regulations and specific packaging instructions for the class of waste being packed which are supplied by the broker or intended burial site operator and which are particular to the intended burial site.

(c) All containers are properly closed, meet DOT specifications, and are acceptable at the burial site for the class of waste contained.

State of California-Health and Welfare Agency | Department of Health Services

RADIOACTIVE MATERIAL LICENSE

License Number: 2105-30

Supplementary Sheet

Amendment Number: 36

18. (continued)

(d) All containers are free of surface contamination per DOT regulations.

(e) Radiation levels conform to DOT limits.

(f) All containers are properly labeled per DOT regulations.

(g) All records, shipping papers, and certificates are complete and accurate.

19. The licensee shall not store more-than 5,000 cubic feet of radioactive waste at any ont time.

20. All radioactive waste shall be loaded and transported in accordance with all applicable U.S. Department of Transportation Regulations , U.S. Nuclear Regulatory Commission Regulations, state regulations, and the requirements of this license. Nothing in this license shall in any way relieve the licensee from full compliance with all applicable local, state, and federal laws and regulations.

21. Sealed sources possessed under this license shall be tested for leakage and/or contamination as required by Section 30275 (c) of the California Radiation Control Regulations.

22. Records of leak test results shall be kept in units of microcuries and maintained for inspection. Records may be disposed of following Department inspection. Any leak test revealing the presence of 0.005 microcuries or more of removable radioactive material shall be reported to the Department of Health Services, Radiologic Health Branch, 601-N. 7th Street P.O. Box 942732, Sacramento, CA 94234-7320, within five days of the test. This report shall include a description of the defective source or device, the results of the test, and the corrective action taken.

23. The licensee is authorized to perform tests for leakage and/or contamination of sealed sources. The following tests may be performed for sources possessed under this license and as a customer service:

(a) Collection of wipe test samples from sealed sources and devices containing sealed sources.

(b) Furnishing leak test kits Model TGA-76 or sealed sources and devices containing sealed sources to customers authorized to use such leak test kits.

(c) Analysis of materials collected by the licensee as stated in (a) above and material returned by customers from leak test kits listed in (b) above for amount of radioactivity. Reports to customers of analysis shall be in microcuries.

24. The licensee shall conduct a physical inventory every six months to account for all sealed sources and/or devices received and possessed under the license. Records of the inventories shall be maintained for inspection, and may be disposed of following Department inspection.

State of California-Health and Welfare Agency

Department of Health Services

RADIOACTIVE MATERIAL LICENSE

License Number: 2105-30

Supplementary Sheet

Amendment Number: 36

25. Notwithstanding the limitations specified by Condition 16 of this license, the licensee is authorized to store all forms of packaged waste for up to five (5) years from the date of receipt.

For the State Department of Health Services

Date January 10, 1995

By:

Radiologic Health Branch
P.O. Box 942732, Sacramento, CA 94234-7320

Form RHA-P (10/80)

South Carolina DHEC
Department of Health and Environmental Control

SOUTH CAROLINA RADIOACTIVE WASTE TRANSPORT PERMIT

Pursuant to Act No. 429 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, a Radioactive Waste Transport Permit is hereby issued to the below-named applicant (shipper). This Permit shall not, in itself, be construed as authorizing a shipper to dispose of radioactive waste within the State of South Carolina. This Permit shall not be transferred, assigned or in any manner disposed of, either voluntarily or involuntarily, directly, or indirectly, through transfer of control to any person, unless the Department shall, after securing full information, find the transfer is in accordance with the provisions of Act No. 429 and shall give written consent.

1. **Name and Address of Applicant (Shipper):**
Thomas Gray & Associates, Inc.
1205 West Barkley Avenue
Orange, CA 92668

2. **Permit Number:**
1450-04-96
[X] Non Restricted
[ ] Restricted

Type:
[X] X
[ ] Y
[ ] Z

3. **Expiration Date:**
December 31, 1996

Restricted 1996

Transportation of waste into or within the State of South Carolina is restricted to the services of

_____

Permit Valid for Following Locations:
Environmental Management & Controls, Inc.
3106 South Faith Home Road
Turlock, CA 95380

For the South Carolina Department of Health and Environmental Control

December 19, 1995
Date of Issuance

By _____
Virgil R. Autry, Director
Division of Radioactive Waste Management

DHEC 801 (9/95)

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

NON-TRANSFERABLE LICENSE

LICENSE NUMBER	SUE DATE	EFFECTIVE DATE	EXPIRATION DATE
27578	10-5-95	----------	11-30-96

CHP CARRIER NUMBER	LOCATION		
CA— 706		☐ Duplicate	☐ Replacement
		☐ Initial	☒ Renewal

LICENSEE NAME AND PHYSICAL ADDRESS *(only if different from below)*

The person or firm named has been licensed pursuant to the California Vehicle Code for:

OPERATION OF:

☐ Emergency Ambulances ☐ Armored Cars

☐ (IMS) Inspection & Maintenance Station, File Code Number_____

☐ School Bus Contractor's License

CONTROL NUMBER 117727

LICENSEE NAME AND MAILING ADDRESS

Thomas Gray & Associates, Inc.
1205 West Barkley Avenue
Orange, CA 92668

HAZARDOUS MATERIALS TRANSPORTATION

☐ **(HMX)** Explosive subject to Division 14, Vehicle Code, Materials subject to Section 31302, Vehicle Code, and other hazardous materials.

☐ **(HMO)** Other Hazardous Materials.

(HMW) Hazardous materials in certified waste hauler vehicles only (fee exempt); ☒ registration number: 1020

CHP 360 (Rev 8-92) OPI 066 92 94820

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

HAZARDOUS MATERIALS
CERTIFICATE OF REGISTRATION

Registrant: THOMAS GRAY AND ASSOCIATES
Attn: Frank J Gutierrez
1205 W Barkley Ave.
Orange, CA 92668

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 060595 006 050D Issued: 06/06/95 Expires: 06/30/96

Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

(1) A copy of the registration statement filed with RSPA; and
(2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) subject to the registration requirement must keep a copy of that carrier's current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202)366-4109.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

PERMIT TO OPERATE AS A HIGHWAY CONTRACT CARRIER

File No. T— 151,282

THOMAS GRAY & ASSOCIATES, INC.
Name of Carrier

Number	Street	City	Zip Code	County
1205	West Barkley Avenue	Orange	92668	Orange (30)

The above-named Carrier, having made written application to the Public Utilities Commission of the State of California for a permit to operate as a HIGHWAY CONTRACT CARRIER, pursuant to the Public Utilities Code, and having complied with said Code, is granted this permit authorizing the transportation of property for compensation by motor vehicle over the public highways of the State of California as a HIGHWAY CONTRACT CARRIER, as defined in said Code, subject to the following conditions:

(1) No vehicle or vehicles shall be operated by said Carrier unless adequately covered by a public liability and property damage insurance policy or corporate surety bond as required by Sections 3631 and 3632 of the Public Utilities Code.

(2) No motor vehicle shall be operated by said Carrier unless there is displayed thereon an identification symbol in accordance with the directions and requirements of this Commission.

(3) Said Carrier shall comply with all orders, decisions, rules, regulations, directions and requirements governing the operations of said Carrier, issued, published, prescribed or adopted by this Commission pursuant to said Code.

(4) Said Carrier shall at all times while operating under this permit, or any amendment or supplement thereto, observe and comply with all decisions, orders, rules and regulations issued, prescribed or adopted by this Commission relating to or affecting rates and charges to be assessed or collected by said Carrier for transportation and accessorial services.

~~(5) This permit does not authorize the transportation of property when such transportation is covered by said Carrier's Highway Common Carrier operative authority.~~

(6) This permit shall be subject to amendment or modification from time to time by this Commission as conditions may warrant or require and shall also be subject to suspension or revocation as provided in the Public Utilities Code.

(7) This permit shall not be sold, assigned, leased or otherwise transferred or encumbered without first obtaining Commission authorization.

(8) This permit shall lapse and terminate if not exercised for a period of one year.

(9) This permit is limited to:

(a) Transportation subject to the minimum rate tariff(s) purchased and maintained by said Carrier for which another type of permit is not required,

(b) Transportation for which minimum rates have not been established by the Commission, and

(c) Independent contractor subhauling operations other than those requiring another type of permit.

Dated at San Francisco, California, June 5, 1986

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

By Victor Weisser
Executive Director

[Seal]

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

BROKER SITE USE PERMIT

for Commercial Low-Level Radioactive Waste Disposal Site

PERMIT NUMBER: B400

EXPIRATION DATE: 2/28/97

Registrant:
ENVIRONMENTAL MANAGEMENT & CONTROLS INC
1205 W BARKLEY AVE
ORANGE CA 92668-1214

The person or firm to whom this certificate is issued must comply with applicable federal and state regulations related to the safe management of low-level radioactive waste

Permit Does Not Imply Approval

ECY 810-2-78-B (2/93)

STATE OF CALIFORNIA—CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
PETE WILSON, Governor

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
400 P STREET, 4TH FLOOR
P.O. BOX 806
SACRAMENTO, CA 95812-0806
(916) 323-3219

*** HAZARDOUS WASTE TRANSPORTER REGISTRATION ***

NAME AND ADDRESS OF REGISTERED TRANSPORTER:

Thomas Gray & Associates, Inc.
1205 West Barkley Avenue
Orange, California 92668

TRANSPORTER REGISTRATION NO: 1020

EXPIRATION DATE: September 30, 1996

THIS IS TO CERTIFY THAT THE FIRM NAMED ABOVE IS DULY REGISTERED TO TRANSPORT HAZARDOUS WASTE IN THE STATE OF CALIFORNIA IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 6.5, DIVISION 20 OF THE HEALTH AND SAFETY CODE AND DIVISION 4.5, TITLE 22 OF THE CALIFORNIA CODE OF REGULATIONS.

THIS REGISTRATION CERTIFICATE MUST BE USED IN CONJUNCTION WITH VEHICLES AND/OR CONTAINERS WHICH HAVE BEEN CERTIFIED PURSUANT TO SECTION 25169.1, HEALTH AND SAFETY CODE, OR A VARIANCE ISSUED BY THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL FOR HIGHWAY TRANSPORT WITH THE EXCEPTIONS OF TRANSPORT SOLELY BY WATER, RAIL OR AIR.

THIS REGISTRATION CERTIFICATE MUST BE CARRIED IN THE VEHICLE USED TO TRANSPORT HAZARDOUS WASTE.

(AUTHORIZED SIGNATURE)

AUG 1 8 1995

(DATE)

cc: California Highway Patrol

ISSUE DATE: 4-22-85

EPA

ACKNOWLEDGEMENT OF NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

This is to acknowledge that you have filed a Notification of Hazardous Waste Activity for the installation located at the address shown in the box below to comply with Section 3010 of the Resource Conservation and Recovery Act *(RCRA)*. Your EPA Identification Number for that installation appears in the box below. The EPA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with EPA; on all applications for a Federal Hazardous Waste Permit; and other hazardous waste management reports and documents required under Subtitle C of RCRA.

EPA I.D. NUMBER → *CAD066151648

GRAY THOMAS & ASSOC
1205 N BARKLEY AVE
ORANGE CA 92668

INSTALLATION ADDRESS →

1205 N BARKLEY AVE
ORANGE CA 92668

EPA Form 0700-12A (4-80)

APPENDIX E

DAILY LOG FOR HAZARDOUS WASTE DISPOSAL

DAILY LOG
HAZARDOUS WASTE DISPOSAL

Acton • Mickelson • Environmental, Inc.
4511 Golden Foothill Parkway, Suite 1
El Dorado Hills, CA 95762
AME Project No. 21001.____

Whittaker Corporation, Bermite Facility
22116 West Soledad Canyon Road
Santa Clarita, CA 91350

Site Health and Safety Officer:				Date:		Page __ of ___
Truck Identification	Driver/Company	Weight (tons)	Volume (cubic yards)	Area of Origin	Waste Material (type)	Documentation

Comments:

Tracking: ☐ Project File (original) ☐ Site File

APPENDIX F

BERMITE FACILITY SITE HEALTH AND SAFETY PLAN FOR TRANSPORTATION ACTIVITIES

ACTON • MICKELSON • ENVIRONMENTAL, INC.

SITE HEALTH AND SAFETY PLAN

* FOR TRANSPORTATION OF HAZARDOUS WASTES ONLY *

Client Whittaker Corporation	AME Project No. 21001.73
Site Name Bermite Facility	Site Address 22116 west Soledad Canyon Rd Santa Clarita, California

Prior to initiating field activities, the Site Safety Officer must review the Site Health and Safety Plan (SHSP) with all members of the field crew. Each member must then sign and date a copy of the SHSP indicating they have reviewed and understand all aspects of the SHSP. This signed copy is returned to the project file upon completion of field activities.

SHSP's may be revised or rewritten for different phases of a project if site activities are distinctly different, if areas of differing hazard are involved, or as information about contaminants and hazards changes. Changing conditions may justify either tightening or loosening SHSP restrictions and action levels, depending upon the additional information provided.

SIGNATURES OF REVIEWERS/FIELD CREW: Signature indicates that this person has reviewed and understands all segments of the SHSP.

Signature	Date

LOCAL EMERGENCY TELEPHONE NUMBERS (INCLUDE AREA CODES)

Ambulance	( ) 911
Hospital Emergency Room	( ) 911
Poison Control Center	(800) 777-6476
Fire Department	( ) 911
Airport (Burbank)	(818) 840-8847
Explosives Unit	( ) 911

NOTE: If you list 911, check to be sure it is activated in the site area and determine whether it is enhanced.

A. GENERAL INFORMATION

Client Whittaker Corporation	AME Project No. 21001.73
Site Name Bermite Facility	Client Claim/P.O. No. —
Site Address 22116 West Soledad Canyon Rd	Project Manager Don Bransford
Site Owner Whittaker Corporation	
Plan Prepared By [signature]	Date
Approved By	Date
Revised By	Date
Revision Approved By	Date
Proposed Date of Investigation	Date

Objectives: Phase I Load Hazardous Waste onto Trailers for Off-Site Disposal
Phase II Transport Hazardous Waste to Disposal Facility
Phase III

Proposed Date of Investigation August 1996 through December 1998.

Hazard Summary/Level of Protection:

A ☐ B ☐ C ☐ D ☒ (with modifications--see Section D.1)

Summary of Available Information:
Hazardous Waste, including metals, volatile organic compounds, and low-level radioactive materials, will be excavated from nine locations at the site. Waste will be stockpiled, loaded onto truck-trailers, and transported off-site for disposal.

Sources of Background Information:
On-going Remedial Investigation; Previous Investigations.

B. EMERGENCY INFORMATION

LOCAL EMERGENCY TELEPHONE NUMBERS (INCLUDE AREA CODES):

Ambulance	( ) 911
Hospital Emergency Room	( ) 911
Poison Control Center	(800) 777-6476
Fire Department	( ) 911
Airport	(818) 840-8847
Explosives Unit	( ) 911

NOTE: If you list 911, check to be sure it is activated in the site area and determine whether it is enhanced.

SITE RESOURCES

Water supply available on site:	Yes ☒	No ☐
Telephone available on site:	Yes ☒	No ☐
Bathrooms available on site:	Yes ☒	No ☐
Other resources available on site	Yes ☒	No ☐

If yes, identify: Buildings for cover

If you answered "no" to any of the above questions, identify the closest available facility and provide directions.

EMERGENCY CONTACTS	Phone Number (include area codes)	
	Work Phone	Home Phone
Project Manager Don Bramford	(916) 939-7550	(916) 672-9261
Principal-in-Charge Barbara Mickelson	(916) 939-7550	(916) 676 3831
Health and Safety Officer Bruce Zike	(916) 726-3599	(916) 729-2658
Site Contact Glen AbdunNur	(805) 259-2241	(818) 360-4343
Regulatory Consultant Penny Nakashima	(818) 551-2881	(909) 596-1613
Mike Reina - Transportation Coordinator	(805) 287-3737	(805) 288-3119
Don Byer - Transportation Coordinator (Alt)	(805) 287-3737	(805 250-0972

C. EMERGENCY ROUTES

Give name, address, telephone number, directions, distance and time estimate, and map.

HOSPITAL: Exit Bermite facility main entrance and travel west on Soledad Canyon Road (will change to Valencia Boulevard). Turn left (south) at McBean Parkway. Mayo Newhall Memorial Hospital is located at 23845 West McBean Parkway (west side of the road). Hospital route map attached. (Attachment A)

OTHER: Approximately 3.5 miles from the site; 10 to 15 minutes in traffic.

D. SITE/WASTE CHARACTERISTICS

Waste/Contaminant Type(s):	☐ Liquid	☒ Soil	☒ Solid	☐ Sludge	☐ Gas
Characteristic(s):	☐ Corrosive ☐ Volatile	☐ Ignitable ☐ Toxic	☒ Radioactive ☐ Reactive	☐ Unknown ☐ Other_____ (Name)	

Major Spills/Releases

Release Type	Date	Chemical	Quantity	Contaminated Media*
Landfill	—	See Section 2.1 in the Transportation Plan	± 1,000 yd³	Soil

*Air, surface water, soil, or ground water.

Free Product: ☐ Yes	☒ No	Dissolved: ☐ Yes	☒ No

Have removal actions occurred? ☒ Yes ☐ No

If yes, describe: Soil/hazardous waste has been excavated. This plan addresses the removal/transportation of the hazardous waste.

General Facility Description: Former Ordnance manufacturer

Site Characterization: Trenching, soil borings, geophysical surveys, soil vapor surveys

Description: Active ☐ Closed/Abandoned ☒

Site Activities (operations on site, products, raw materials used, etc.):
Formerly manufactured ordnance products. Some testing; waste disposal on-site

How many years has the site been operating? —	Was the site used by previous owners? ☒ Yes ☐ No

Describe previous site activity: Currently, removal of debris (some hazardous waste) from former landfills and areas of operation.

Surface cover on site includes:

☒ Soil/bare ground	☐ Clay caps	☐ Plastic cover
☒ Grass	☒ Paving/asphalt	☒ Water bodies (ephemeral)
☐ Woods	☐ Swamp	☒ Brush/scrub
☒ Buildings	☒ Unpaved roads	☐ Other

Site surface area estimated at 996 acres ~~square feet~~.

Percentage of surface area:

Paved	5 %
Vegetated	80 %
Bare soil	15 %
Under water	0 %

Potential for dust generation on site: ☒ High ☐ Medium ☐ Low

Any site access restrictions: ☒ Yes ☐ No

- ☒ Fenced/locked
- ☒ Posting (signs)
- ☒ Security guards

Is there evidence of public access to the site: ☒ Yes ☐ No

If yes, describe: Horses, motorcycles, and pedestrians observed sporadically.

CHEMICALS/WASTE STORED ON SITE:

	Quantity	Size	Chemical
☐ Drums			
☐ Tanks			
☐ Vats			
☐ Surface Impoundments			
☒ Pits/Landfills	Unknown	± 100 ac.	see transportation plan
☐ Other			

Utilities Location/Ownership (electrical, gas, telephone, cable TV):

No subsurface activities will be conducted during the loading/transport of hazardous waste

History (worker or non-worker injury; complaints from public; previous agency action):

Currently conducting a Remedial Investigation under the direction of the California Department of Toxic Substances Control (DTSC)

Have citizen complaints been filed regarding the site: ☒ Yes ☐ No

If yes, describe: Most regarding development activities (i.e. construction activities). Complaints have been unfounded.

Are regulatory agencies involved with the site: ☒ Yes ☐ No

If yes, are they: ☐ federal ☒ state ☐ local

REGULATORY CONTACTS

Name	Agency	Phone
Penny Nakashima	DTSC	(818) 551-2881
		( )
		( )
		( )
		( )

E. HAZARD EVALUATION

List all chemicals below that have been identified or are suspected on site and their maximum concentrations in soil/water. Information on hazardous properties are listed in the appendix. For chemicals not shown in the appendix, enter the hazardous property information in the spaces provided.

Chemical Name	TWA/STEL (Concentrations in parts per million)	Maximum Concentration in Soil (Concentrations in parts per million)	Maximum Concentration in Water	Health Hazards/ Comments
Benzene	10/—		120	
Tetrachloroethene	25/100	25,000	—	
Trichloroethene	50/100	41,000	—	
1,1,1-Trichloroethane	350/450	8,000	—	
Lead	—	71,000	—	
Copper	—	15,000	—	
Nickel	—	2,100	—	
Depleted Uranium	—	—	—	
Styrene	50/100	18,000	—	
1,2,3-Trichloropropane	10/—	14	—	

Refer to appendix for detailed Hazardous Property information.

P = results pending.

Potential Hazards (check boxes that apply to the site):

- ☐ Corroded containers
- ☒ Visible soil contamination
- ☐ Observed free product
- ☐ Open lagoons
- ☐ Visible leachate
- ☒ Odors
- ☒ Dust
- ☐ Open pits
- ☐ Underground tanks
- ☐ Surface tanks
- ☐ Observed tanks
- ☐ Air stack emissions
- ☐ Visible on-site releases
- ☐ Visible off-site releases
- ☐ Visible on-site erosion
- ☐ On-site surface water contamination
- ☐ Off-site surface water contamination
- ☐ Interior building contamination
- ☐ No obvious hazards

F. SITE SAFETY WORK PLAN

Team Members (list names)	Responsibility
Don Bransford	Project Manager
Bruce Bike	Site Safety Officer
Michael Acton	Public Information
Peter Bailey / Gene Davis	Field Team Leader
Mike Reina	Transportation Coordinator

PERIMETER ESTABLISHMENT

Map/Sketch Attached:	☒ Yes	☐ No	Site Secured:	☒ Yes	☐ No
Perimeter Identified:	☒ Yes	☐ No	Zone(s) of Contamination Identified:	☒ Yes	☐ No

INVESTIGATION-DERIVED MATERIAL DISPOSAL

SEE ATTACHMENT B

F1. PERSONAL SAFETY

Site Entry Procedures: Enter through the front gate at the guard shack. The guard will notify the site health and safety officer.

Personnel Protection:

Level of Protection: ☐ A ☐ B ☐ C ☒ D

Modifications:

1. All personnel must wear hard hat, safety shoes, safety glasses, and/or face shield when not inside trucks or other covered vehicles.
2. Neoprene gloves and tyvek/saranax suit should be worn if contact with contaminated water or soil is likely.
3. Hearing protection must be worn if noise levels prevent normal conversation at a distance of 3 feet. No smoking, eating, or drinking is allowed on site.
4. No personnel are to enter or approach any excavation area where there is a danger of wall collapse or confined space entry.
5. Respiratory protection is dependent on conditions listed in the next section.

SURVEILLANCE EQUIPMENT AND MATERIALS:

Instrumentation	Action Level	Action
Photoionization detector (hNu)	5 units*	If the breathing zone in the cab of the truck exceeds the action level, the driver will leave the area
Other (specify):		
Oxygen meter	<19.5% oxygen	Do not enter area of confined space.
Explosimeter	>10% LEL >20% LEL	Eliminate all ignition sources. Reduce levels immediately or leave site.

*Method of Calculation:

- Known Chemical: 1/2 x TLV (TWA) = Level C - air purifying respirator
  5 x TLV = Level B - supplied air respirator
- Unknowns: 5 x background or 5 units = Level C - APR with combination organic vapor/dust cartridges.
  10 x background or 10 units = Level B - supplied air respirator.

First Aid Equipment: Standard first aid kit, portable eye wash.

First Aid Procedures:

Ingestion: DO NOT induce vomiting, summon medical help.
Inhalation: Move victim to fresh air, seek medical attention if needed.
Dermal Exposure: Remove contaminated clothing, flush with water.

DECONTAMINATION PROCEDURE:

Level: A ☐ B ☐ C ☐ D ☒

Refer to Health and Safety Manual for detailed instructions.

Personnel: Flush exposed skin with soap and water.

Special Requirements: None

WORK LIMITATIONS (time of day, weather, heat/cold, stress):

In high ambient temperatures, follow heat-stress precautions. Provide plenty of cool water and electrolytes (e.g., Gatorade). Remove protective clothing during breaks. Check resting pulse and increase number of breaks if pulse does not return to normal during work breaks.

In cold ambient temperatures (<0° F.), follow hypothermia precautions.

Work may progress only during daylight hours or under conditions of adequate lighting.

ELECTRICAL HAZARDS:

Utilities located by N/A on _____ (date) before drilling.

Maintain at least 10 feet of clearance from overhead power lines. If unavoidably close to overhead or buried power lines, turn power off and lock out circuit breaker. Avoid standing in water when operating electrical equipment.

CONFINED SPACES:

If entry into confined space is necessary, an Entry Permit must be completed and authorized, and confined-space entry procedures followed.

G. SITE SKETCH

See attached hospital route figure (Attachment A)

MATERIAL			
	Diesel Fuel	**Gasoline**	**Kerosene**
Water Solubility	Insoluble	Insoluble	Insoluble
Specific Gravity	.81 - 0.90	.72 - 0.76	0.83 - 1.0
Vapor Density	NA	3 - 4	NA
Flash Point, degrees F.	130	-45	100 - 165
Vapor Pressure	NA	Variable	5
LEL/UEL	0.6 - 1.3 / 6 - 7.5	1.4% / 7.6%	0.7% / 5.0%
LD_{50}, mg/kg			
TLV-TWA[G]	None established	300 ppm	None established
IDHL Level	None established	None established	None established
Odor Threshold or Warning Concentration, ppm	0.008	< 1	0.008
Hazard Property	BCD	BCD	BCD
Dermal Toxicity	CI	CI	CI
Acute L Exposure Symptoms	BCDHFIKLMNP	BCEFHIKLMNP	BCDFHIKLMNP

See section 2.1 of the Transportation Plan for chemical properties.

HAZARDOUS PROPERTY INFORMATION

EXPLANATIONS AND FOOTNOTES

Water solubility is expressed in different terms in different references. Many references use the term "insoluble" for materials that will not readily mix with water, such as gasoline. However, most of these materials are water soluble at the part per million or part per billion level. Gasoline, for example, is insoluble in the gross sense, and will be found as a discrete layer on top of the ground water. But certain gasoline constituents, such as benzene, toluene, and xylenes will also be found in solution in the ground water at the part per million or part per billion level.

1. Water solubility expressed as 0.2 g means 0.2 grams per 100 grams of water at 20° C.

2. Solubility of metals depends on the compound in which they are present.

3. Several chlorinated hydrocarbons exhibit no flash point in the conventional sense, but will burn in the presence of high energy ignition source or will form explosive mixtures at temperatures above 200° F.

4. Expressed as mm Hg under standard conditions.

5. Practically nonflammable under standard conditions.

6. Explosive concentrations of airborne dust can occur in confined areas.

7. Values for Threshold Limit Value-Time Weighted Average (TLV-TWA) are OSHA Permissible Exposure Limits except where noted in Items 8 and 9.

8. TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists (ACGIH), which is lower than the OSHA's Permissible Exposure Limit (PEL).

9. TLV-TWA recommended by the National Institute of Occupational Safety and Health (NIOSH). A TLV or PEL has not been adopted by the ACGIH or OSHA.

10. A - Corrosive
    B - Flammable
    C - Toxic
    D - Volatile
    E - Reactive
    F - Radioactive
    G - Carcinogen
    H - Infectious

11. Dermal toxicity data are summarized in the following three categories:

    a. **Skin Penetration**

	A - Negligible penetration (solid-polar)
+	B - Slight penetration (solid-nonpolar)
++	C - Moderate penetration (liquid/solid-nonpolar)
+++	D - High penetration (gas/liquid-nonpolar)

HAZARDOUS PROPERTY INFORMATION

EXPLANATIONS AND FOOTNOTES
(continued)

b. **Systemic Potency**

E - Slight hazard (LD_{50} = 500 - 15,000 mg/kg)
Lethal dose for 70 kg man = 1 pint to 1 quart

F - Moderate hazard (LD_{50} = 500 - 15,000 mg/kg)
Lethal dose for 70 kg man = 1 ounce to 1 pint

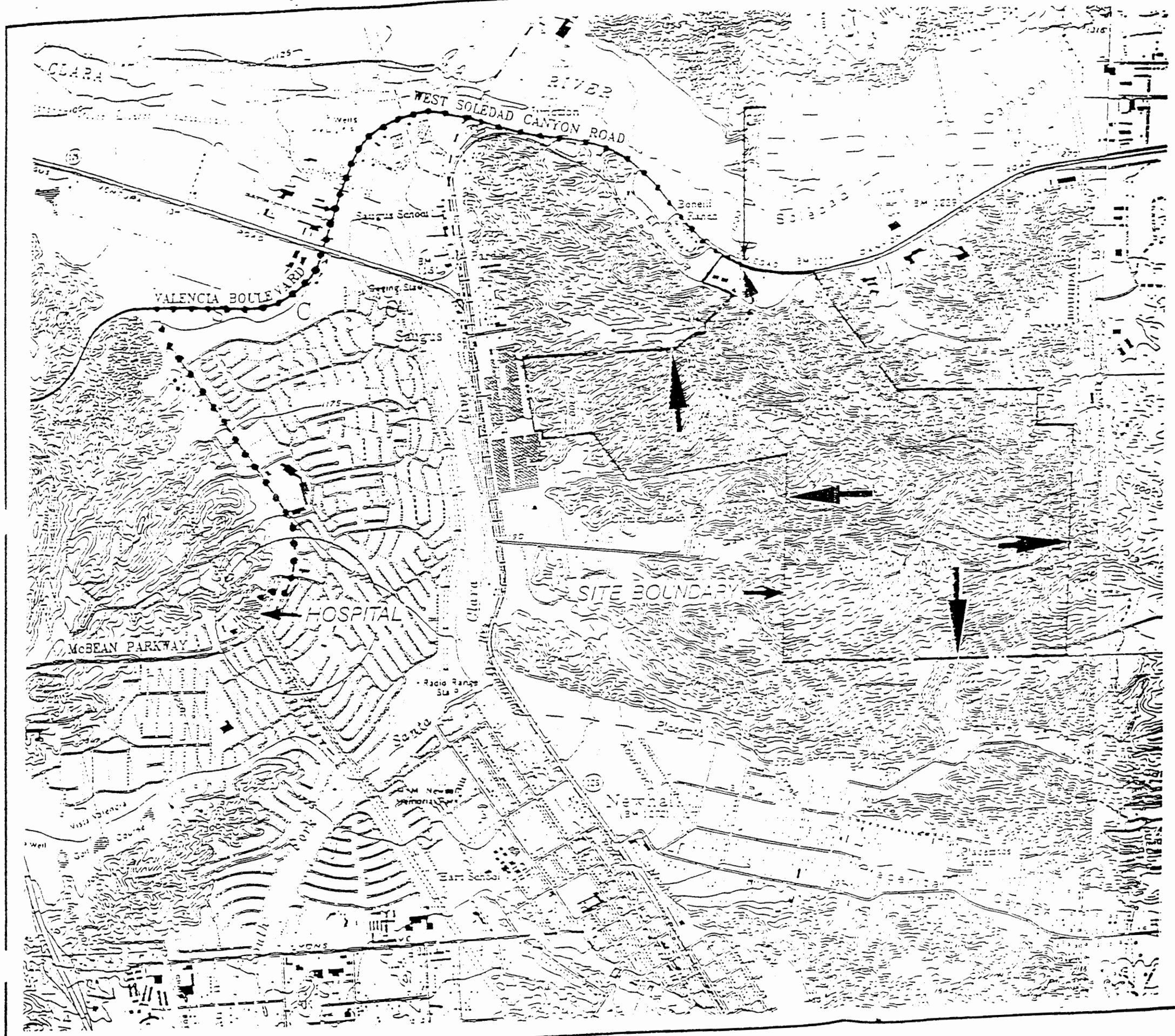
G - Extreme hazard (LD_{50} = 500 - 15,000 mg/kg)
Lethal dose for 70 kg man = drops to 20 ml

c. **Local Potency**

H - Slight = reddening of the skin
I - Moderate = irritation/inflammation of skin
J - Extreme = tissue destruction/necrosis

12. Acute Exposure Symptoms

A - Abdominal pains
B - Central nervous system
C - Comatose
D - Convulsions
E - Confusion
F - Dizziness
G - Diarrhea
H - Drowsiness
J - Fever
K - Headache
L - Nausea
M - Respiratory system irritation
N - Skin irritation
O - Tremors
P - Unconsciousness
Q - Vomiting
R - Weakness



NORTH

GENERAL NOTES:

BASE MAP FROM U.S.G.S.
MINT CANYON & NEWHALL, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1988

HOSPITAL ROUTE

ALTERNATE EVACUATION ROUTES
(GATES)

0 2000
Approximate Scale
(in feet)

ATTACHMENT A

FIGURE 3-1
SITE LOCATION, EVACUATION, AND HOSPITAL ROUTE MAP
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No. 21001.S1	Drawn CCB
File No. SD301SM	Prepared PHB
Revision 0	Reviewed

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ATTACHMENT B TO APPENDIX F

PROCEDURES FOR THE TRANSPORTATION OF HAZARDOUS WASTE

1.0 RESPONSIBILITIES

Drivers will be responsible for adhering to procedures outlined in the Transportation Plan, including securing the cover over the trailer(s) after the waste material has been loaded, checking the hazardous waste manifest, and transporting the load to the appropriate hazardous waste disposal facility. Drivers shall not engage in any loading or decontamination activities. Mr. Mike Reina of Martin Environmental Services, Inc. (Martin), will coordinate schedules of the transportation firms and will act as the primary contact for accidents and/or breakdowns of trucks en route to disposal facilities (see Section 2.0 of the Transportation Plan). The Site Health and Safety Officer will prepare the hazardous waste manifest, inspect the truck prior to departure from the facility, conduct health and safety tailgate meetings with the truck drivers, and will be responsible for on-site safety and response operations.

2.0 ACCIDENT/BREAKDOWN CONTINGENCY PLAN

In case of an accident or breakdown en route to a disposal facility, the truck driver shall contact Mr. Mike Reina of Martin at one of the following phone numbers:

- Work (805) 287-3737
- Pager (805) 288-3119
- Home (805) 296-0154

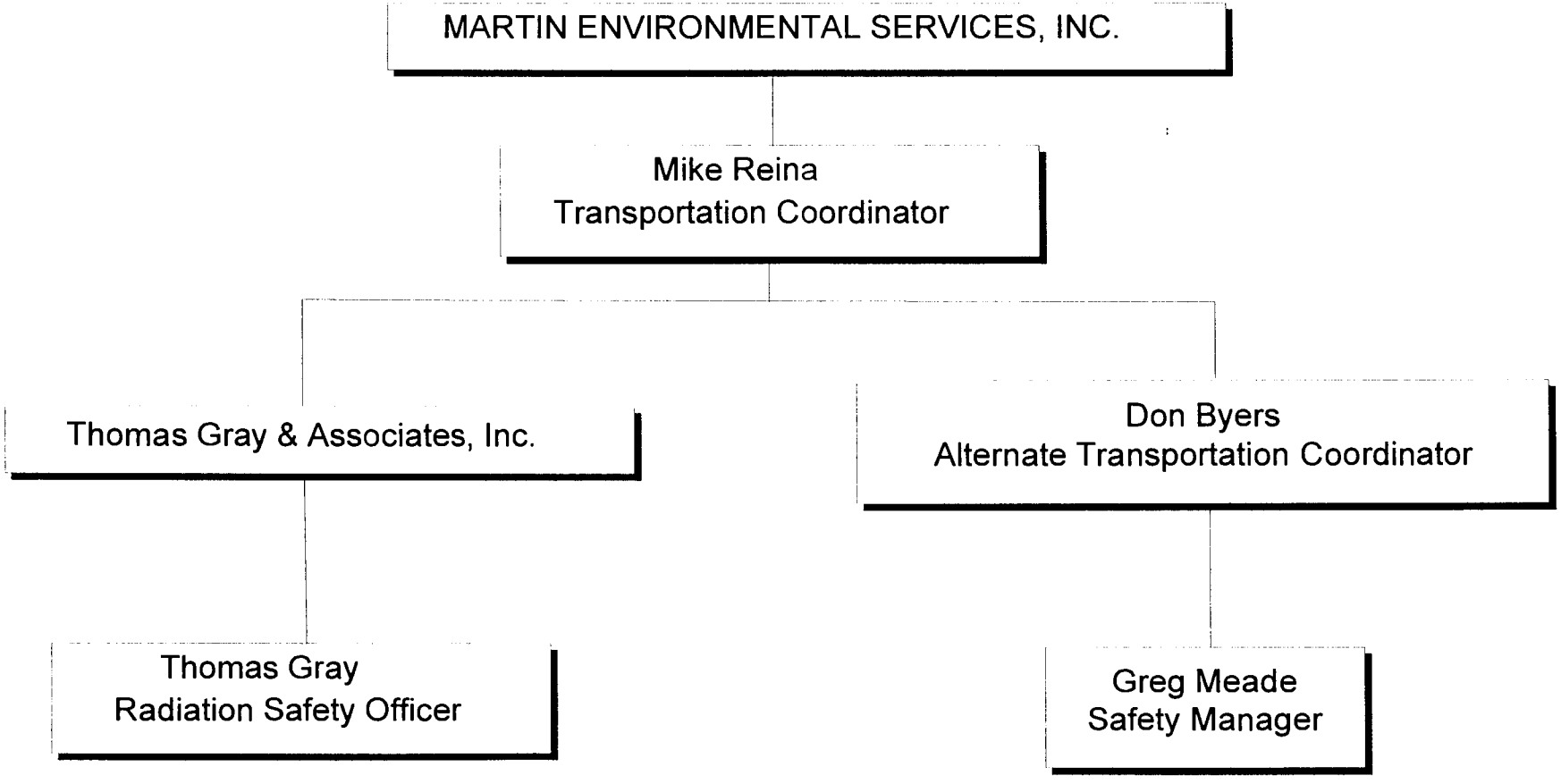
If Mr. Reina is unavailable, the driver shall contact Mr. Don Byer of Martin at one of the following phone numbers:

- Work (805) 287-3737
- Pager (805) 288-3102
- Home (805) 250-0972

Once contacted, Messrs. Reina or Byer will assess the need for emergency services and, if necessary, arrange for equipment to complete the transportation of hazardous waste to the disposal facility (see the Contingency Plan for Hazardous Waste Transportation [Appendix G to the Transportation Plan] for a complete discussion of contingencies). The chain-of-command for the trucking companies have been included in Attachment C.

ATTACHMENT C

TRANSPORTATION COMPANIES
CHAIN-OF-COMMAND



APPENDIX G

CONTINGENCY PLAN FOR HAZARDOUS WASTE TRANSPORTATION

APPENDIX G

CONTINGENCY PLAN FOR HAZARDOUS WASTE TRANSPORTATION

1.0 INTRODUCTION

This Contingency Plan (CP) has been prepared for the off-site transportation and disposal of hazardous waste derived from investigation and remediation activities at the Whittaker Corporation, Bermite facility (Bermite facility), located at 22116 West Soledad Canyon Road, Santa Clarita, California (Figures G-1 and G-2). The CP documents the procedures to be implemented following accidental off-site releases of hazardous waste during transportation activities. Hazardous waste will be generated during the conduct of a Remedial Investigation (RI), Interim Remedial Measures (IRMs), and/or the Remedial Action (RA) between August 1996 and December 1998. Copies of this CP will be distributed to the agencies listed in Table G-1. Hazardous wastes from the Bermite facility are not an immediate threat to public health or the environment; therefore, any release of hazardous waste during transport will not be an immediate threat to public health or the environment.

Non-hazardous waste will also be generated during the RI, IRMs, and/or RA. Non-hazardous waste will be transported to a Class III landfill with a non-hazardous waste manifest in a truck clearly marked with a "non-hazardous" placard.

2.0 DESCRIPTION AND DESTINATION OF HAZARDOUS WASTE

2.1 Description of Hazardous Waste

Hazardous waste and hazardous waste residue have been identified in the soil of several areas at the Bermite facility. Soil containing the hazardous waste and hazardous waste residue will be excavated for off-site treatment and/or disposal. Excavation and off-site disposal of soil containing hazardous concentrations of organic compounds, heavy metals, ignitable wastes, or depleted uranium will be completed during the IRMs and/or RA. Hazardous wastes identified during the RI (except depleted uranium), the physical and chemical properties of the hazardous wastes, and the anticipated quantities of each hazardous waste material are included in Table G-2. Currently, hazardous waste that will be transported from the Bermite facility consists of solid materials; it is anticipated that liquid hazardous waste will not be produced.

Depleted uranium, a low-level radioactive waste by-product of the process that produces enriched uranium, will be transported off site for disposal. Depleted uranium was used at the Bermite facility in armor piercing penetrator heads for bullets. Depleted uranium was used for its high density and respective penetration ability, not for its radioactive nature. Based on the

results of a radiation characterization survey conducted by a health physicist, no radiation hazard exists to workers or the public from the depleted uranium. Depleted uranium from the Bermite facility is in metal form; it will not be an airborne inhalation or skin contamination hazard.

2.2 Destination of Hazardous Waste

Waste containing hazardous concentrations of organic compounds, heavy metals, and ignitable waste will be transported to Chemical Waste Management, Inc., in Kettleman City, California. Waste containing hazardous concentrations of radioactive materials will be transported to the Chem-Nuclear Systems, Inc., low-level radioactive waste disposal facility in Barnwell, South Carolina for landfilling. Transportation routes for the hazardous waste within Santa Clarita and California are shown on Figures G-1 and G-2, respectively.

3.0 EMERGENCY RESPONSE

3.1 Off-Site Accident/Breakdown with Release of Hazardous Waste

In case of an accident or a breakdown involving a truck transporting hazardous waste from the Bermite facility and the release of hazardous waste to the environment, the driver will immediately cease operation of the truck, if safe, and notify the emergency contact from Martin Environmental Services, Inc. (Martin), by two-way radio communications or telephone (see Section 3.3). The emergency contact will then notify the appropriate emergency service organization, which may include contacting one or more of the following:

- State Spill Reporting (800) 852-7550
- California Highway Patrol 9-1-1
- Los Angeles County Sheriff's Department 9-1-1

While the emergency contact is notifying the emergency service organization(s), the driver will secure the area of the release and the truck from public access, which may include setting up warning reflectors or cones. (Flares should not be used to secure an area where hazardous waste from the Bermite facility has been released.) Based on the types of hazardous waste produced at the Bermite facility, evacuation of the release area will not be necessary. Once the area is secured and it is safe from traffic to enter the release area, the driver will don the appropriate health and safety equipment, contain the release, and begin cleanup. Drivers will carry the following equipment to complete the removal of the release:

Protective Outer Garment	Nitrile or Equivalent Gloves
Goggles or Face Shield	Hard Hat
Steel-Toed Boots	Respirator
Shovel	Broom
Absorbent	Five-Gallon Bucket

For releases in excess of 0.5 cubic yard, additional personnel and equipment may be necessary to complete the cleanup.

If the driver is unable to reach any of the emergency contact personnel at Martin, he will contact the appropriate emergency services organization. Also, if the truck and/or trailers are disabled, the emergency contact will arrange for replacement equipment to be transported to the accident/breakdown location to complete transportation to the disposal facility. Alternatively, arrangements may be made for a tow vehicle to move the disabled vehicle to another location where it can be repaired or the waste can be transferred.

3.2 Off-Site Accident/Breakdown without Release of Hazardous Waste

In case of an accident or a breakdown involving a truck transporting hazardous waste from the Bermite facility, the driver will immediately cease operation of the truck, if safe, and notify the emergency contact from Martin, as described in Section 3.1. If the truck has been involved in an accident, the emergency contact will notify either the California Highway Patrol or the Los Angeles County Sheriff's Department, whichever has jurisdiction where the truck is located. As a courtesy, notification will also be given to the appropriate law enforcement agency during a truck breakdown. Other than the notifications and cleanup activities related to the release, the driver will proceed in the same manner as discussed in Section 3.1.

3.3 Emergency Contact Persons

In case of an off-site accident or breakdown of a truck, the driver will immediately contact Martin. Emergency contacts at Martin are listed below.

Contact Person	Affiliation	Phone Number
Mr. Mike Reina (Primary)	Martin Environmental Services	805-287-3737 (Work) 805-288-3119 (Pager) 805-296-0154 (Home)
Mr. Don Byer (Secondary)	Martin Environmental Services	805-287-3737 (Work) 805-288-3102 (Pager) 805-250-0972 (Home)
Mr. Greg Meade (Secondary)	Martin Environmental Services	805-287-3737 (Work) 805-288-3104 (Pager) 805-222-9852 (Home)

After the initial contact is made with the emergency services organization (if necessary) and the emergency contact person for Martin, personnel of Whittaker and/or Acton • Mickelson • Environmental, Inc. (AME), the environmental consultant for the investigation at the Bermite facility, should be notified of the accident and/or breakdown by the emergency contact from Martin.

Contact Person	Affiliation	Phone Number
Ms. Barbara Mickelson	Acton • Mickelson • Environmental	916-939-7550 (Work) 916-676-3831 (Home)
Mr. Glen AbdunNur	Whittaker Corporation	805-259-2242 (Work) 818-360-4343 (Home)
Ms. Lynne Brickner	Whittaker Corporation	805-526-5700 (Work)

4.0 SUMMARY

This CP is an integral part of the Transportation Plan for hazardous waste at the Bermite facility. It shall be carried in the cab of each truck that transports hazardous waste from the Bermite facility. Notification procedures outlined in the text should be followed by all drivers at the time of an accident or breakdown. Containment of any releases which occur during transportation is primarily the responsibility of the driver, and secondarily, if the size of the release exceeds the capabilities of the driver to contain it, Martin.

TABLE G-1

EMERGENCY SERVICE ORGANIZATION[a]

Organization	Jurisdiction	Address
California Highway Patrol	California Highways and Freeways	28648 The Old Road Santa Clarita, CA 91355
Los Angeles County Sheriff's Department	Los Angeles County	23740 Magic Mountain Parkway Santa Clarita, CA 91355
Santa Clarita Fire Department	Santa Clarita	23757 Valencia Boulevard Santa Clarita, CA 91355
California Department of Transportation (Caltrans)	California Highway and Freeways	120 South Spring Street Los Angeles, CA 90012
Public Utilities Commission	Transportation Firms	411 East Canon Perdido Street Santa Barbara, CA 93101

TABLE G-2

PHYSICAL AND CHEMICAL PROPERTIES OF HAZARDOUS WASTE CONSTITUENTS

Compound	Liquid Density (g/cc)[e]	Vapor Pressure (mm Hg)[f]	Henry's Law Constant (kPa-m3/mole)[g]	Koc[a] (ml/g)[h]	Water Solubility[b] (mg/l)[i]	TTLC[c] (mg/kg)[j]	STLC[d] (mg/l)	Quantity[k]
Metals								
Arsenic	Solid	NA[l]	NA	NA	(5)	500	5.0	50
Chromium III	Solid	NA	NA	NA	NA	2,500	5.0	500
Copper	Solid	NA	NA	NA	NA	2,500	25	200
Lead	Solid	NA	NA	NA	NA	1,000	5.0	500
Nickel	Solid	NA	NA	NA	NA	2,000	20	50
Volatile Organic Compounds, Halogenated								
Tetrachloroethene	1.63	14	2.3	660	150	NA	NA	900
1,1,1-Trichloroethane	1.31	13 kPa	0.28	152	730	NA	NA	100
Trichloroethene	1.46	60	1.18	126	1,100	2,040	204	100
1,2-Dichloroethane	1.25	70	0.12	14	8,700	NA	NA	100

TABLE G-2 (continued)

PHYSICAL AND CHEMICAL PROPERTIES OF HAZARDOUS WASTE CONSTITUENTS

Compound	Liquid Density (g/cc)[e]	Vapor Pressure (mm Hg)[f]	Henry's Law Constant (kPa-m3/mole)[g]	Koc[a] (ml/g)[h]	Water Solubility[b] (mg/l)[i]	TTLC[c] (mg/kg)[j]	STLC[d] (mg/l)	Quantity[k]
Volatile Organic Compounds, Nonhalogenated								
Benzene	0.879	12.7 kPa	0.55	72	1,780	NA	NA	1
Styrene (monomer)	0.905					NA	NA	1
1,2,3-Trichloropropane	1.39	3	0.36	51	2,700	NA	NA	1

[a]Koc = Organic carbon/water partition coefficient.
[b]Water solubility of inorganic compounds is generally dependent on oxidation state, specific salt, and pH of solution.
[c]TTLC = Total threshold limit concentration.
[d]STLC = Soluble threshold limit concentration.
[e]g/cc = Grams per c
[f]mm Hg = Millimeters per mercury.
[g]kPa-m3/mole = Kilopascals. Alternative unit for vapor pressure.
[h]ml/g = Milliliters per gram.
[i]mg/l = Milligrams per liter.
[j]mg/kg = Milligrams per kilogram.
[k]Estimated quantity (cubic yards of soil containing hazardous waste that will be removed. Some hazardous waste may contain more than one hazardous constituent.
[l]NA = Not applicable.

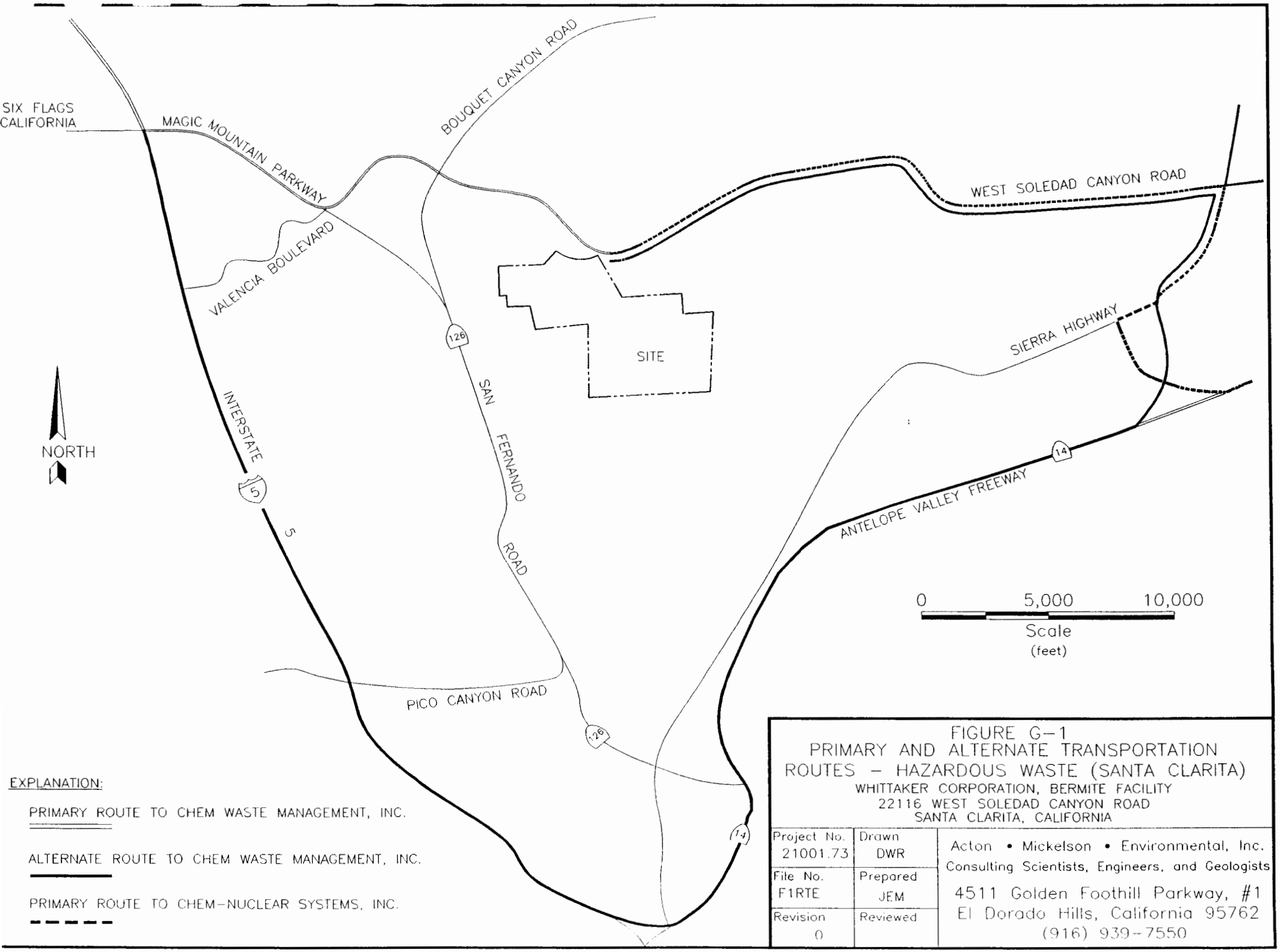


FIGURE G-1
PRIMARY AND ALTERNATE TRANSPORTATION ROUTES - HAZARDOUS WASTE (SANTA CLARITA)
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No. 21001.73	Drawn DWR
File No. F1RTE	Prepared JEM
Revision 0	Reviewed

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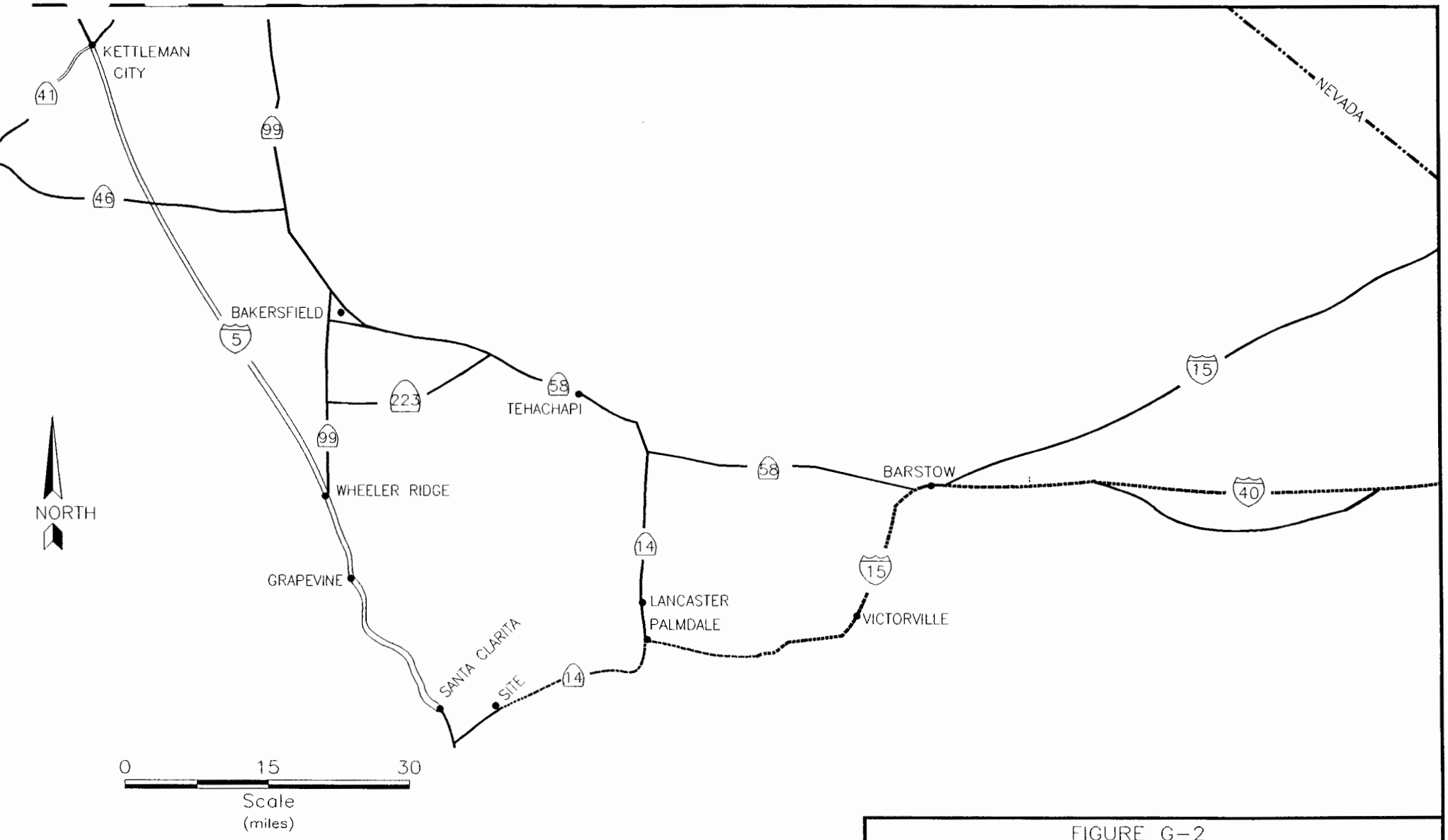

EXPLANATION:

PRIMARY ROUTE TO CHEM WASTE MANAGEMENT, INC.

PRIMARY ROUTE TO CHEM-NUCLEAR SYSTEMS, INC.

FIGURE G-2
PRIMARY AND ALTERNATE TRANSPORTATION ROUTES - HAZARDOUS WASTE (CALIFORNIA)
WHITTAKER CORPORATION, BERMITE FACILITY
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA

Project No.	Drawn
21001.73	DWR
File No.	Prepared
F2RTE	JEM
Revision	Reviewed
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